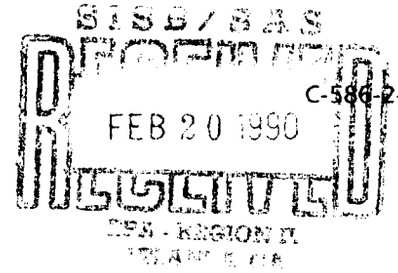
POOR LEGIBILITY

PORTIONS OF THIS DOCUMENT MAY BE UNREADABLE, DUE TO THE QUALITY OF THE ORIGINAL

NUS CORPORATION
1927 LAKESIDE PARKWAY
SUITE 614
TUCKER, GEORGIA 30084
404-938-7710

#1821



C-586-2-0- 184

February 20, 1990

Mr. A.R. Hanke
Site Investigation and Support Branch
Waste Management Division
Environmental Protection Agency
345 Courtland Street, N. E.
Atlanta, Georgia 30365

Subject: Eaton Corporation
Bowling Green, Warren County, Kentucky
Environmental Priorities Initiative/Modified Preliminary Assessment
EPA ID No. KYD098950306
TDD No. F4-8910-22

Dear Mr. Hanke:

Please find attached two copies of the subject draft report for your review and commentary. Additional documents are attached that are pertinent to the preliminary assessment portion of the report.

The Eaton Corporation facility was inspected by members of the NUS Field Investigation Team during the week of December 11, 1990. The inspection was conducted in two phases. Phase one included preliminary assessment activities that focused on a public well survey, target analysis and other HRS concerns. Phase two involved the on site facility investigation to identify Solid Waste Management Units (SWMU'S) and Areas of Concern (AOC).

A review of the attached HRS documents indicate that no further action is recommended for the Eaton Corporation facility. The 15 Solid Waste Management units and two Areas of Concern during the investigation were either inactive or well managed; however, three SWMU's were recommended for further low priority assessment.

If you have any questions relative to the investigation, please contact me.

Very truly yours,

Mitch Cohen, P.E.
Project Manager

Approved:

MC/ma

Attachments

R-586-3-0-18

Deferred
2/28/90
Craig A. Benedict

FINAL

ENVIRONMENTAL PRIORITIES INITIATIVE PRELIMINARY ASSESSMENT OF EATON CORPORATION FITZGERALD INDUSTRIAL DRIVE BOWLING GREEN, KENTUCKY 42101 EPA ID #KYD098950306

Prepared Under
TDD No. F4-8910-22
CONTRACT NO. 68-01-7346

Revision 0

FOR THE

WASTE MANAGEMENT DIVISION
U.S. ENVIRONMENTAL PROTECTION AGENCY

MARCH 13, 1990

NUS CORPORATION
SUPERFUND DIVISION

Prepared By	Reviewed By	Approved By
Mitch Cohen, P.E. Project Manager	Greg Schank Assistant Regional Project Manager	Phil Blackwell Regional Project Manager

NOTICE

The information in this document has been funded wholly by the United States Environmental Protection Agency (EPA) under Contract Number 68-01-7346 and is considered proprietary to the EPA.

This information is not to be released to third parties without the expressed or written consent of the EPA.

TABLE OF CONTENTS

EXECUTIVE SUMMARY		**ES-1**
1.0	**INTRODUCTION**	**1**
1.1	Objectives	1
1.2	Scope of Work	1
2.0	**SITE DESCRIPTION**	**2**
2.1	Site Location	2
2.2	Site Features	2
2.3	Ownership History	2
2.4	Nature of Operations	5
2.5	Permit and Regulatory History	5
3.0	**ENVIRONMENTAL SETTING**	**7**
3.1	Water Supply	7
3.2	Surface Waters	7
3.3	Hydrogeology	8
3.4	Critical Habitats/Endangered Species	9
4.0	**VISUAL SITE INSPECTION**	**10**
4.1	Solid Waste Management Units (SWMUs)	10
4.2	VSI Participants	11
REFERENCES		**46**

APPENDIX A - Topographic Map
APPENDIX B - Preliminary Assessment Form

Number		Page

TABLES

Table 4-1	Solid Waste Management Units and Other Areas of Concern	12

FIGURES

Figure 2-1	Site Location Map	3
Figure 2-2	Site Layout Map	4
Figure 4-1	Solid Waste Management Unit (SWMU), Other Areas of Concern (AOC) and Photo Locations	16

EXECUTIVE SUMMARY

Eaton Corporation is located on Fitzgerald Industrial Drive in Bowling Green, Warren County, Kentucky. The 17.0-acre facility property consists of a 470,000 square foot plant building and the former location of four surface impoundments. Operations began in 1965 and continue at the present time. Eaton Corporation fabricates, thermomolds, electroplates, paints, and assembles devices for the control of electric motors. Some of these devices include switch boxes, contactors, timer relays, and motor starters. Zinc, tin, nickel, or silver are plated onto metal parts fabricated from steel, copper, alloys, and small amounts of aluminum. The finished product is sold to original equipment manufactures, industrial users, and authorized wholesalers.

The majority of the population within 3 miles of the facility is served with potable water from either the city of Bowling Green or the Warren County Water District. The city of Bowling Green obtains water from two surface water intakes located along the Barren River; however, these intakes are not located on the surface water migration path. The Warren County Water District buys water from the city. A house count identified approximately 146 households not served by municipal water within the 3-mile radius. Those not served by a municipal system use private wells to obtain potable water. Dye tests conducted at a nearby facility showed that the Lost River, a subterranean river, enters Jennings Creek at the surface, Jennings Creek, in turn, flows into the Barren River, downstream from the Bowling Green intakes.

Runoff from the facility enters a small ditch located in the northwest portion of the facility which flows to a sinkhole. The sinkhole was formerly used to discharge treated effluent from surface impoundments. The ranges of several endangered or threatened species are known to exist in the study area. These include the gray bat, the Indian bat, the eastern cougar, the bald eagle, and the arctic peregrine falcon.

The Visual Site Inspection (VSI) conducted during the investigation identified 15 Solid Waste Management Units (SWMUs) and 2 Areas of Concern (AOCs). Three of the SWMUs are recommended for further assessment. All other SWMUs and the AOCs are recommended for no further action.

1.0 INTRODUCTION

The NUS Corporation Region 4 Field Investigation Team (FIT) conducted a Preliminary Assessment (PA) and a Visual Site Inspection (VSI) at the Eaton Corporation facility on December 11, 1989. The task was performed as part of the Environmental Priorities Initiative (EPI) program as stated in Technical Directive Document (TDD) No. F4-8910-22.

1.1 OBJECTIVE

The major objective of the EPI program is to conduct an onsite and offsite inspection of the assigned facility in order to characterize the Solid Waste Management Units (SWMUs), associated releases, and other Areas of Concern (AOCs). The inspection is conducted in a two-phase operation: the Preliminary Review, which includes the review and evaluation of specific file documents; and the Visual Site Inspection (VSI), which identifies all SWMUs, known releases, and AOCs.

1.2 SCOPE OF WORK

The scope of this investigation included the following activities:

- a file search of state and EPA files in an attempt to obtain and review specific documents (RCRA, CERCLA, AIR, and NPDES), which will help characterize the facility,
- development of a detailed site base map to scale including site features, solid waste management unit locations, and photo-documentation areas,
- evaluation of target populations within a 3-mile radius from the site with regard to groundwater, air, and surface water,
- a private well survey within a 3-mile radius of the facility,
- inspection and photo-documentation of all Solid Waste Management Units (SWMUs) and related releases and exposure pathways, and
- inspection and photo-documentation of all Areas of Concern (AOCs).

2.0 SITE DESCRIPTION

2.1 SITE LOCATION

Eaton Corporation is located on Fitzgerald Industrial Drive, approximately 2.5 miles southwest of downtown Bowling Green, Warren County, Kentucky. The facility's latitude and longitude are 36°57'30.05"N and 86°28'47.0" W, respectively (Appendix A).

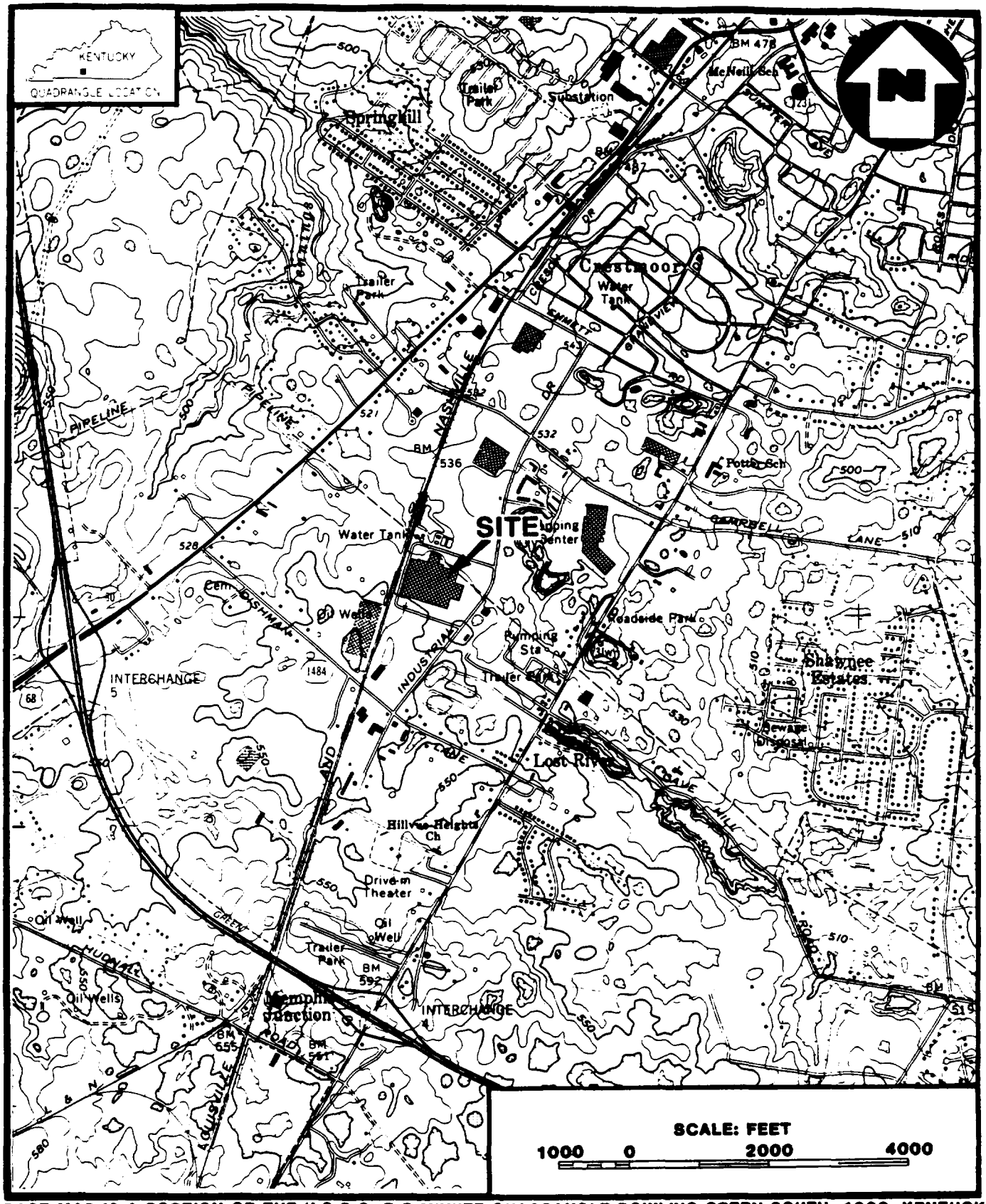
2.2 SITE FEATURES

The facility is located on approximately 17 acres of flat land in an industrial portion of Bowling Green. There are several other large industrial complexes within 0.5 mile of the facility. The major feature of the facility property is a plant building, which comprises about 470,000 square feet (Ref. 1, p. 6). The building contains administrative offices, areas of material preparation, areas of assembly, and two areas where wastewater treatment operations take place. Just to the north of the plant building are the former locations of four closed (two settlement and two sludge-drying) impoundments and a sinkhole which was used to discharge clarified wastewater from the settlement ponds. The sinkhole actually is located just beyond the fence which runs along the northern border of the facility property (Refs. 2; 3).

The facility is surrounded by a 6-foot chain-link fence with a guarded gate. To the west, just beyond the fenceline, are railroad tracks. The property between the plant and the fence lines is well-grassed (Refs. 1, p. 4; 3).

2.3 OWNERSHIP HISTORY

The Eaton Corporation facility in Bowling Green, Kentucky has been operating since 1965. The property is owned by the city of Bowling Green and is leased to Eaton Corporation. Eaton Corporation maintains headquarters in Cleveland, Ohio (Refs. 1, p. 6; 4; 5).

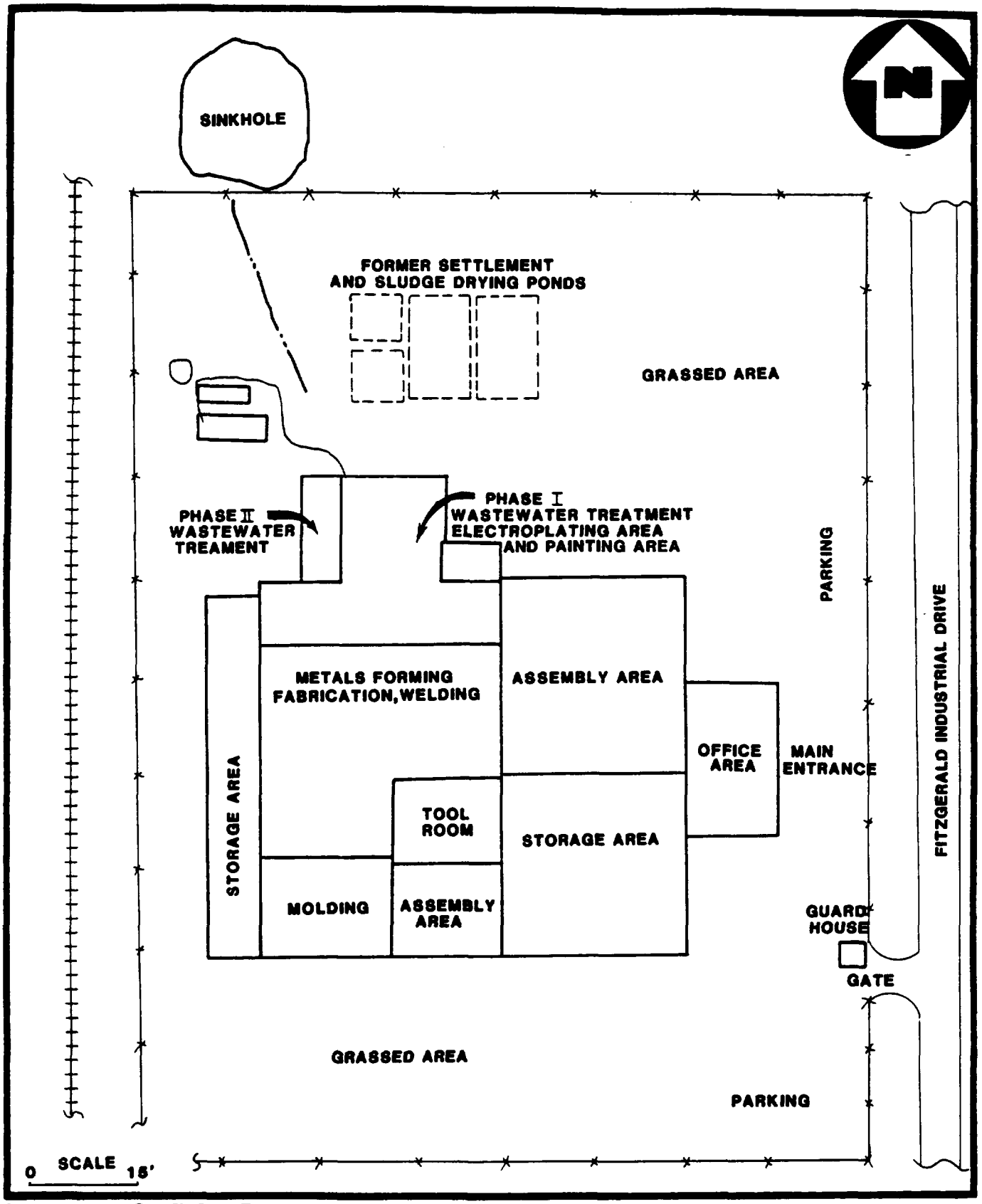


BASE MAP IS A PORTION OF THE U.S.G.S. 7.5 MINUTE QUADRANGLE BOWLING GREEN SOUTH, 1968, KENTUCKY.

SITE LOCATION MAP
EATON CORPORATION
BOWLING GREEN, WARREN COUNTY, KENTUCKY

FIGURE 2-1

NUS CORPORATION



SITE LAYOUT MAP
EATON CORPORATION
BOWLING GREEN, WARREN COUNTY, KENTUCKY

FIGURE 2-2

NUS CORPORATION

2.4 NATURE OF OPERATIONS

This Eaton Corporation plant is one of many nationwide. Operations at the facility include the fabricating, thermomolding, electroplating, assembly, and painting of devices for the control of electric motors. Some of these devices include switch boxes, contactors, timer relays, and motor starters. Eaton Corporation products ultimately are the connection between electrical power and a running motor. Parts are either fabricated from metals such as sheet steel, copper, alloys, and small amounts of aluminum or molded from thermoplastic. The metals are then electroplated with either zinc, tin, nickel, or silver. Some of the assembled units are pretreated and then painted as part of the finishing process. The completed devices are commonly used on industrial and commercial machinery where the mechanical machine function needs to be controlled. In addition, some of these devices are used to protect the motor from heat damage caused by overcurrents. Typical customer base consists of original equipment manufacturers, industrial users, and the resale market through authorized distributor wholesalers (Refs. 1, p. 5; 6).

The facility uses a two-phase wastewater treatment system within the plant to treat wastewater produced as a result of plating, metal finishing, and solvent cleaning operations. Treated effluent is discharged to the municipal sewer system (Permit No. P010). Sludges designated as RCRA F006 are dewatered and then shipped to the Heritage Environmental Services facility in Indianapolis, Indiana. Scrap metal is taken away and recycled in Louisville, Kentucky. Waste solvents are stored in drums and shipped by Heritage Transport, Inc. within the 90 day limit to the Heritage Environmental Services Facility in Indianapolis, Indiana (Refs. 1, p. 13; 5). Prior to installation of Phase II of the wastewater treatment system in 1981, four closed RCRA surface impoundments were used to treat wastewater generated by the plant. After settlement, effluent was discharged into a sinkhole under an NPDES permit (Refs. 1, p. 13; 7).

2.5 PERMIT AND REGULATORY HISTORY

On November 19, 1980, Eaton Corporation filed a RCRA Part A Hazardous Waste Permit application with the state of Kentucky as a storage and treatment facility. The facility operated four surface impoundments for settlement and sludge drying as part of wastewater treatment. During June of 1984, Eaton Corporation submitted a closure plan for the deactivation and remediation of the surface impoundments. Installation of the Phase II wastewater treatment plant had rendered the use of settlement and sludge drying impoundments obsolete. Final closure was approved by the state on

December 11, 1984. The state also dropped Eaton Corporation from consideration as a hazardous waste facility at that time. The current status of the facility is that of generator. The facility is currently in compliance with RCRA regulations for generators according to the state (Refs. 8; 9; 10).

3.0 ENVIRONMENTAL SETTING

The Environmental Setting section, in addition to the Topographic Map (Appendix A), and Preliminary Assessment Form (Appendix B) provides information to evaluate the potential for a release to groundwater and surface water resources and other receptors.

3.1 WATER SUPPLY

The majority of the population within 3 miles of the Eaton Corporation facility is served by municipal water systems. The city of Bowling Green serves approximately 13,000 connections with water obtained from two surface water intakes. These intakes, however, are not located along the extended surface water pathway. The Warren County Water District serves about 12,460 connections with water it buys from the city of Bowling Green (Ref. 1, p. 3; Appendix A).

The population not served by a public water system uses private wells for potable water. A house count using topographic maps identified approximately 146 households not on a municipal water system within the 3-mile radius. Between the 3- and 4-mile radii, approximately 101 households are not served by a municipal system. The estimated population served by groundwater within 3 miles of the facility is, therefore, 555 (146 households x 3.8 people/household) (Appendix A).

3.2 SURFACE WATER

Surface water runoff from the facility enters a ditch, which, in turn, flows to the sinkhole just north-northwest of the plant building. Railroad tracks and related roadbed act as a barrier to flow to the west, and Fitzgerald Industrial Drive is a barrier to the east. Jennings Creek is located about 4000 feet northwest of the facility. It is obvious that surface water migration to the creek is highly unlikely. Rhodamine WT dye tests at a facility located about 0.25 mile north of Eaton Corporation proved that the Lost River, a subterranean river, flows into Jennings Creek. The Lost River flows about 0.25 mile east of Eaton Corporation. It is highly likely that underground solution cavities in the karstic limestone provide an underground pathway from the sinkhole to the Lost River (Ref. 11).

Jennings Creek flows about 6.0 stream-miles and then enters the Barren River. This point of confluence is about 5.0 stream-miles upstream from one of Bowling Green's intakes, as well as 8.0 miles from the other city intake (Appendix A).

3.3 HYDROGEOLOGY

Bowling Green has a temperate climate that is greatly influenced by moisture-laden pressure systems moving northeastward from the Gulf of Mexico (Ref. 12, p. 3). The average annual precipitation is approximately 48 inches (Ref. 13, p. 43). The 1-year, 24-hour rainfall is between 2.5 and 3.0 inches, and the net annual precipitation is approximately 12 inches (Refs. 14, p. 93; 13, pp. 43, 63).

The Eaton Corporation facility is located within the Pennyroyal Plain physiographic area of the Central Lowlands Physiographic Province (Ref. 12, p. 2). This area is a flat plain containing numerous sinkholes and disappearing surface streams flowing northwest (Ref. 12, pp. 2, 3). Underlain primarily by carbonate rocks, the Pennyroyal plain is a classic karst landscape, and is known worldwide for its numerous karst features (Ref. 15, p. 16).

Up to 8 feet of clayey surficial deposits overlie the outcropping Ste. Genevieve Limestone at the area (Refs. 11, plate 1; 16). The Ste. Genevieve Limestone consists of white to bluish-grey, fine to coarsely crystalline limestone, which contains dark bluish-grey chert. The thickness of this unit ranges from 160 to 250 feet, and it rests conformably upon the St. Louis Limestone. The St. Louis Limestone is a light-grey to black, fine to coarsely crystalline limestone, which is dolomitic or argillaceous in places and contains abundant black chert nodules and stringers. The St. Louis Limestone is approximately 230 to 300 feet thick in Bowling Green, and it rests conformably upon the 100 to 160 foot thick Salem and Warsaw Limestones. The Salem and Warsaw Limestones are typically light- to dark-grey, granular to fine grained, massive, cross bedded, and cross laminated limestones, which are argillaceous in places. The lower portion of this unit is comprised of medium- to dark-grey , brittle, siltstone (Ref. 17).

Groundwater in the Bowling Green area has been attributed to secondary porosity openings in the underlying limestone formations. The aquifers within these formations have been divided into units that are, for the most part, synonymous with local drainage basins. The most significant aquifer and the aquifer of concern at the facility is the unconfined Graham Spring aquifer (Ref. 11, pp. 18, 22, plate 3). This aquifer's main zone of saturation is approximately 50 feet below land surface in the area (Ref. 11, plate 3). Wells completed in the Graham Spring aquifer range from 50 to 350 feet deep, indicating that this aquifer likely extends from the Ste. Genevieve Limestone into the underlying

St. Louis Limestone (Ref. 12, pp. 18, 19, 23, plate 1). The gradient for the Graham Spring aquifer's potentiometric surface is very low; however, groundwater flow probably follows topographic lows northwest and discharges into Jennings Creek (Ref. 12, plate 3). Disappearing surface streams and sinkholes in the area form direct hydrologic connections between land surface and groundwater reservoirs (Ref. 15, plate 3).

3.4 CRITICAL HABITATS/ENDANGERED SPECIES

There are no critical habitats in Warren County, Kentucky; however, Mammoth Cave National Park is located about 25 miles northeast of the facility. Several federally endangered or threatened species have been identified for general distribution in the study area. These species include the gray bat, the Indian bat, the eastern cougar, the bald eagle, and the Arctic peregrine falcon (Refs. 18; 19). Also, the Barren River is commonly used for recreational fishing, boating, and swimming (Ref. 20).

4.0 VISUAL SITE INSPECTION (VSI)

The Visual Site Inspection (VSI) of the Eaton Corporation facility was performed on December 11, 1989. The VSI focused on the past and present waste streams at the facility in order to identify all Solid Waste Management Units (SWMUs), and any Areas of Concern (AOCs), and to collect information beneficial in assessing their potential to release hazardous waste or constituents to the environment.

4.1 SOLID WASTE MANAGEMENT UNITS (SWMUs) AND OTHER AREAS OF CONCERN (AOCs)

Fifteen SWMUs and two AOCs were identified at the Eaton Corporation facility during the Visual Site Inspection. Solid Waste Management Units identified include the former location of the settling/sludge drying impoundments, the former NPDES permitted discharge sinkhole, a drum storage area, five roll on/roll off, 20-cubic-yard dumpsters, three electroplating areas, a paint booth, Phase I and Phase II of the Wastewater Treatment Plant, and the hazardous waste drum storage area. The Areas of Concern were comprised of two scrap areas outside of the plant building (Ref. 1, p. 13).

During the Visual Site Inspection, personnel representing Eaton Corporation accompanied the NUS Field Investigation Team members. The VSI was conducted in a fashion which attempted to follow the same route as waste handling at the facility; however, eight SWMUs and the two AOCs were located outside of the facility's normal area of operation (Refer to Figure 4-1).

All SWMUs and AOCs delineated on Table 4-1 are located in Figure 4-1 and further discussed in this section. Figure 4-1 also shows photograph locations. Weather during the VSI was cold, breezy with snow flurries. Ground conditions were wet (Ref. 1).

4.2 VSI PARTICIPANTS

The following Eaton Corporation and NUS personnel were present during the Visual Site Inspection (VSI).

Mitch Cohen, P.E.
NUS Corporation
Civil Engineer

Julie Keller
NUS Corporation
Chemist

Roland McAbee
Eaton Corporation
Manufacturing Services Manager

Steve F. Fesko
Eaton Corporation
Principal Engineer

Sharon L. Sigler
Eaton Corporation
Corporate Attorney

Jerry Wooten
Eaton Corporation
Plant Engineer

TABLE 4-1

SWMU IDENTIFICATION SUMMARY
EATON CORPORATION
BOWLING GREEN, KENTUCKY

SWMU Number	Name of Unit	Years of Oper.	Waste Managed	Evidence of Release	Recommendation		
					No Further Action	Further Assessment	Sampling
1	Former location of settling and sludge drying ponds (SWMU)	19	Wastewater from plating, metal finishing, solvent cleaning, and painting operations	None			X'
2	Discharge sinkhole (SWMU)	19	Effluent from the former settlement ponds	None			X"
3	Scrap area (AOC)	1	Sealed or dry motors	None	X		
4	Scrap area (AOC)	1	Abandoned metal cabinets, racks, equipment, and scrap metal	None	X		
5	Drum storage (SWMU)	8	Mostly empty 55-gallon drums of acids, toluene, paint. Some drums were either full or partially full	None		Y	

X' It may be necessary to sample on a low-priority basis for the presence of contaminants, which may have migrated to the nearby sinkhole.
X" It may be necessary to sample on a low-priority basis for the presence of contaminants in the sinkhole.
Y Partial drums should be stored in the hazardous waste drum storage area (SWMU No. 17).

TABLE 4-1

SWMU IDENTIFICATION SUMMARY
EATON CORPORATION
BOWLING GREEN, KENTUCKY

SWMU Number	Name of Unit	Years of Oper.	Waste Managed	Evidence of Release	Recommendation		
					No Further Action	Further Assessment	Sampling
6	Roll on/roll off dumpster (SWMU)	25	Scrap wooden pallets	None	X		
7	Roll on/roll off dumpster (SWMU)	25	Common steel scrap	None	X		
8	Roll on/roll off dumpster (SWMU)	25	Mixed steel scrap	None	X		
9	Roll on/roll off dumpster (SWMU)	25	Stainless steel scrap	None	X		
10	Roll on/roll off dumpster (SWMU)	1	F006 plating sludge	None	X		

X' It may be necessary to sample on a low-priority basis for the presence of contaminants, which may have migrated to the nearby sinkhole.
X" It may be necessary to sample on a low-priority basis for the presence of contaminants in the sinkhole.
Y Partial drums should be stored in the hazardous waste drum storage area (SWMU No. 17).

TABLE 4-1

SWMU IDENTIFICATION SUMMARY
EATON CORPORATION
BOWLING GREEN, KENTUCKY

SWMU Number	Name of Unit	Years of Oper.	Waste Managed	Evidence of Release	Recommendation		
					No Further Action	Further Assessment	Sampling
11	Plating bath line (SWMU)	9	32 tanks with either alkaline, nitric acid, sulfuric acid, hydrochloric acid, zinc, sodium dichromate, copper, silver, nickel, or tin	None	X		
12	Plating barrel line (SWMU)	17	32 tanks with either alkaline, zinc, nickel, tin, copper, hydrochloric acid, nitric acid, or sodium dichromate	None	X		
13	Auto-zinc plating machine (SWMU)	4	33 tanks with either alkaline, sodium dichromate, soap cleaner, hydrochloric acid, or nitric acid	None	X		
14	Paint booth (SWMU)	25	Nonhazardous paint vapor	None	X		

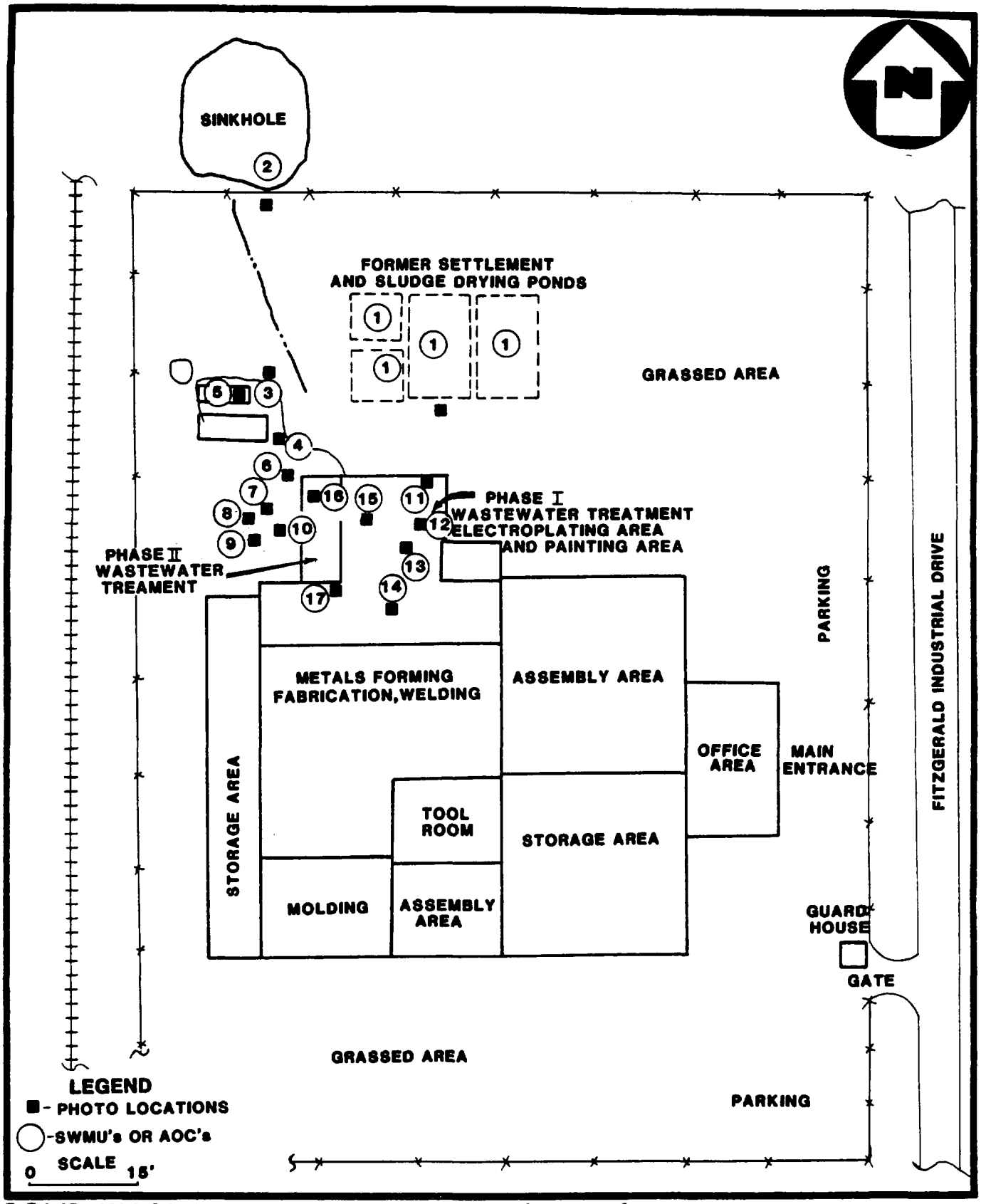
X' It may be necessary to sample on a low-priority basis for the presence of contaminants, which may have migrated to the nearby sinkhole.
X" It may be necessary to sample on a low-priority basis for the presence of contaminants in the sinkhole.
Y Partial drums should be stored in the hazardous waste drum storage area (SWMU No. 17).

TABLE 4-1

SWMU IDENTIFICATION SUMMARY
EATON CORPORATION
BOWLING GREEN, KENTUCKY

SWMU Number	Name of Unit	Years of Oper.	Waste Managed	Evidence of Release	Recommendation		
					No Further Action	Further Assessment	Sampling
15	Phase I wastewater treatment area (SWMU)	13	Painting and solvent cleaning operations wastewater	None	X		
16	Phase II wastewater treatment area (SWMU)	8	Pretreated wastewater from Phase I; F006 sludge is generated here.	None	X		
17	Hazardous waste drum storage area (SWMU)	1	55-gallon drums of paint waste, mixed F003 and F005, waste freon, 1,1,1-trichlorethane, waste nickel and F006	None	X		

X' It may be necessary to sample on a low-priority basis for the presence of contaminants, which may have migrated to the nearby sinkhole.
X" It may be necessary to sample on a low-priority basis for the presence of contaminants in the sinkhole.
Y Partial drums should be stored in the hazardous waste drum storage area (SWMU No. 17).



SOLID WASTE MANAGEMENT UNITS (SWMU) AND OTHER AREAS OF CONCERN (AOC) LOCATIONS EATON CORPORATION BOWLING GREEN, WARREN COUNTY, KENTUCKY

FIGURE 4-1

NUS CORPORATION

SWMU NUMBER: 1

SWMU NAME: Former location of four Settlement/Sludge Drying Impoundments

SWMU DESCRIPTION: The impoundments were located in the north portion of the facility. Prior to installation of the present Phase I and II wastewater treatment system, the four impoundments were used to treat plant wastewater and sludge. First, plant wastewater was discharged to the two settling impoundments. After settlement, the effluent was discharged to a nearby sinkhole (SWMU No. 2) under NPDES permit. Sludge from the two settlement impoundments was then placed into the two sludge drying impoundments. Water which collected in the drying impoundments was allowed to overflow into the settling impoundments. Each of the two sludge beds was 35' x 50', and each of the two settling ponds was 40' x 100'. The depths of all the impoundments were about 5 feet. The impoundments were lined; however, the liner material which was used is unknown (Refs. 1, p. 13; 5; 7, pp. 4-6).

DATE OF START-UP: According to Eaton Corporation personnel, this unit is believed to have been placed in service in 1965 (Ref. 1, p. 13).

DATE OF CLOSURE: The impoundments were certified closed by the state of Kentucky on December 11, 1984 (Ref. 9).

METHOD OF CLOSURE: The impoundments were deactivated in 1981 after the Phase II wastewater treatment system was brought on-line. Closure activities began on July 29, 1983. First, an inflatable building was constructed to cover the impoundments. Standing water was removed and sent to the wastewater treatment system in the Eaton Corporation plant. A total of approximately 100,000 gallons were removed and treated by July 1984. Final stabilization of the sludge commenced with the addition of lime kiln flue dust. The stabilized sludge, liner, and contaminated soil were excavated and shipped to CECOS Environmental located in Williamsburg, Ohio. Sampling of surrounding soil was conducted, and several contaminated areas were identified, excavated, and disposed of accordingly. Approximately 7200 tons of excavated sludge were disposed of. Dames and Moore had been retained by Eaton Corporation to conduct groundwater monitoring between 1981 and 1984. According to

the consultant, no contamination was detected. In 1985, Eaton Corporation was relieved of its requirement to monitor groundwater (Refs. 1, p. 13; 7, pp. 5-7).

In 1986, an inspection showed that the four impoundments had been backfilled, and all contaminated soil and sludge had been disposed of at the CECOS hazardous waste facility. However, soil samples previously collected had exceeded the 2-times-background threshold, approved by the state of Kentucky, for hexavalent chromium, free cyanide and nickel. It appears that since groundwater samples had never revealed contamination, the state of Kentucky approved closure, regardless of soil sample excess of contaminant thresholds (Ref. 7, pp. 8-12).

WASTES MANAGED: Wastewaters generated by plating, metal finishing, solvents cleaning, and painting operations were treated in the impoundments. The sludges were designated as F006 plating sludge.

RELEASE CONTROLS: Apparently the impoundments were bermed and lined; however, the materials used are not known.

RELEASE HISTORY: The sludge drying ponds were allowed to overflow into the settlement impoundments. No other releases were known according to Eaton Corporation personnel (Ref. 1, p. 13).

INTERIM RECOMMENDATIONS: Further Assessment: Although groundwater samples did not reveal contamination, soil samples had. It may be necessary to resample groundwater near the impoundment and sinkhole (SWMU No. 2) to ensure that contamination has not migrated to a known source of groundwater.

A recent EPA internal correspondence conveyed concerns about considering addressing the impoundments and related discharge points under CERCLA, using total constituent levels for metals analysis instead of EP toxicity in closures, and resampling groundwater, since it is believed that monitoring wells were actually developed in a zone of perched water and not the uppermost aquifer (Ref. 21).

PHOTOGRAPH NO. 1A, 1B, 1C

SWMU NUMBER: 2

SWMU NAME: Discharge Sinkhole

SWMU DESCRIPTION: Effluent from the formerly used treatment impoundments (SWMU No. 1) was discharged to the sinkhole located just beyond the north-northwest fence line. A ditch still exists on the facility property, which carries runoff to the sinkhole. The discharge was permitted under the NPDES program.

DATE OF START-UP: According to Eaton Corporation personnel, this unit is believed to have been placed in service in 1965.

DATE OF CLOSURE: Although the sinkhole still exists, discharge ceased in 1981 after Phase II of the wastewater treatment system was installed and placed on-line.

WASTES MANAGED: The sinkhole received effluent from the formerly used settlement impoundments. Sludge that settled out of the wastewater was designated as F006 plating sludge.

RELEASE CONTROLS: There were no release controls. The sinkhole is a surface expression of groundwater.

RELEASE HISTORY: There is no history of any releases other than treated wastewater to the sinkhole according to Eaton Corporation personnel (Ref. 1, p. 13).

INTERIM RECOMMENDATIONS: Further Assessment: Sampling on a low-priority basis may be necessary to determine if contaminants had migrated to the sinkhole from the impoundments.

PHOTOGRAPH NO. 2

AOC NUMBER: 3

AOC NAME: Scrap Area No. 1

AOC DESCRIPTION: Concrete deck underlying two storage sheds in the northwest portion of the facility property. The approximately 4' x 10' area is used to store five sealed or dry motors and metal racks. At the time of the inspection, four of the motors and all of the racks were on the grass, just off the concrete deck.

DATE OF START-UP: According to Eaton Corporation personnel, the scrap was placed in this location during July 1989.

DATE OF CLOSURE: The area was active during the VSI.

WASTES MANAGED: Abandoned or scrap motors and metal racks are stored in this area.

RELEASE CONTROLS: There are no release controls for this area.

RELEASE HISTORY: There have never been any releases from this area according to Eaton Corporation personnel (Ref. 1, p. 13).

INTERIM RECOMMENDATIONS: No Further Action. The concrete and grassed area appeared to be in satisfactory condition. The motors were not leaking, as well.

PHOTOGRAPH NO. 3

AOC NUMBER: 4

AOC NAME: Scrap Area No. 2

AOC DESCRIPTION: Concrete-decked area behind the northwest portion of the plant building. The approximate 10' x 30' area is used to store abandoned steel cabinets, metal racks, machinery, and fabrication equipment. A small amount of the scrap was on a grassed portion of the area during the inspection.

DATE OF START-UP: According to Eaton Corporation personnel, the scrap was placed in this location during July of 1989.

DATE OF CLOSURE: The area was active during the VSI.

WASTES MANAGED: Abandoned or scrap cabinets, metal racks, or machinery.

RELEASE CONTROLS: There were no release controls for this area.

RELEASE HISTORY: According to Eaton Corporation personnel, there have never been any releases from this area (Ref. 1, p. 13).

INTERIM RECOMMENDATIONS: No Further Action. The concrete and grassed area appeared to be in satisfactory condition. There were no releases seen during the inspection.

PHOTOGRAPH NO. 4

SWMU NUMBER: 5

SWMU NAME: Drum Storage Area

SWMU DESCRIPTION: This unit is located inside one of two storage sheds located in the northwest portion of the facility property. The corrugated steel shed is about 25' x 70' and has a concrete floor but no diking or other means of containment. During the inspection, forty-eight 55-gallon drums were stored in the shed. Among the 48 drums were, four full drums of hydrochloric acid, three full drums of nitric acid, and about seven drums of sulfuric acid. The remainder of the drums were empty, except for a few partially full drums of toluene. According to Eaton Corporation personnel, all the drums were supposed to be empty and awaiting pickup by Eaton's supplier, PB and S Chemical of Bowling Green. Pickups of empty drums are once per week for reuse with new product.

DATE OF START-UP: According to Eaton Corporation personnel, this unit is believed to have been placed in service in 1981.

DATE OF CLOSURE: This unit was active during the VSI.

WASTES MANAGED: The empty, partial, or full drums contained acids, solvents, and paints and are stored in this unit until Eaton's supplier picks them up. The full drums appear to be new product, which is awaiting transfer to the raw product storage area of the plant.

RELEASE CONTROLS: There were no release controls other than the concrete deck which supports the shed.

RELEASE HISTORY: According to Eaton Corporation personnel, there have never been any releases from this unit (Ref. 1, p. 13).

INTERIM

RECOMMENDATIONS: Further Assessment: Low priority. The full drums should be transferred to the storage area, and partial/used drums should be transferred to the hazardous waste drum storage area (SWMU No. 17). Containment is required for storage areas of drums.

PHOTOGRAPH NO. 5

SWMU NUMBER: 6

SWMU NAME: Roll on/Roll off Dumpster

SWMU DESCRIPTION: A concrete-decked area is located in the northwest portion of the facility property and is used for the dumpster. This 20-cubic-yard dumpster is used to dispose of wood pallets. Disposal or recycling of waste is conducted by Monarch Environmental located in Bowling Green, Kentucky. Disposal practices by Monarch Environmental are unknown according to Eaton Corporation personnel. Pickups of the dumpster are twice weekly (Refs. 1, p. 13; 22).

DATE OF START-UP: According to Eaton Corporation personnel, this unit is believed to have been placed in service in 1965.

DATE OF CLOSURE: This unit was active during the VSI.

WASTES MANAGED: This dumpster is used to dispose of or recycle scrap wooden pallets.

RELEASE CONTROLS: There are no release controls other than the concrete deck which supports the dumpster.

RELEASE HISTORY: According to Eaton Corporation personnel, there have been no releases from this unit (Refs. 1, p. 13; 5).

INTERIM RECOMMENDATIONS: No Further Action. The dumpster appeared to be in satisfactory condition. No releases were seen during the inspection.

PHOTOGRAPH NO. 6

SWMU NUMBER: 7

SWMU NAME: Roll on/Roll off Dumpster

SWMU DESCRIPTION: A concrete-decked area is located in the northwest portion of the facility property and is used for the dumpster. This 20-cubic-yard dumpster is used to dispose of common steel scrap. Disposal and recycling of scrap steel waste is conducted by Klempner Brothers located in Louisville, Kentucky. Pickups of the dumpster are approximately once every 1 to 2 weeks (Refs. 1, p. 13; 22).

DATE OF START-UP: According to Eaton Corporation personnel, this unit is believed to have been placed in service in 1965.

DATE OF CLOSURE: This unit was active during the VSI.

WASTES MANAGED: This dumpster is used to dispose of and recycle common steel scrap.

RELEASE CONTROLS: There are no release controls other than the concrete deck which supports the dumpster.

RELEASE HISTORY: According to Eaton Corporation personnel, there have been no releases from this unit (Refs. 1, p. 13; 5).

INTERIM RECOMMENDATIONS: No Further Action. The dumpster appeared to be in satisfactory condition. No releases were seen during the inspection.

PHOTOGRAPH NO. 7

SWMU NUMBER: 8

SWMU NAME: Roll on/Roll off Dumpster

SWMU DESCRIPTION: A concrete-decked area is located in the northwest portion of the facility property and is used for the dumpster. This 20-cubic-yard dumpster is used to dispose of mixed steel scrap. Disposal and recycling of scrap steel waste is conducted by Klempner Brothers located in Louisville, Kentucky. Pickups of the dumpsters are approximately once every 1 to 2 weeks (Refs. 1, p. 13; 22).

DATE OF START-UP: According to Eaton Corporation personnel, this unit is believed to have been placed in service in 1965.

DATE OF CLOSURE: This unit was active during the VSI.

WASTES MANAGED: This dumpster is used to dispose of and recycle mixed steel scrap.

RELEASE CONTROLS: There are no release controls other than the concrete deck which supports the dumpster.

RELEASE HISTORY: According to Eaton Corporation personnel, there have been no releases from this unit (Refs. 1, p. 13; 5).

INTERIM RECOMMENDATIONS: No Further Action. The dumpster appeared to be in satisfactory condition. No releases were seen during the inspection.

PHOTOGRAPH NO. 8

SWMU NUMBER: 9

SWMU NAME: Roll on/Roll off Dumpster

SWMU DESCRIPTION: A concrete-decked area is located in the northwest portion of the facility property and is used for the dumpster. This 20-cubic-yard dumpster is used to dispose of stainless steel scrap. Disposal and recycling of steel scrap waste is conducted by Klempner Brothers located in Louisville, Kentucky. Pickups of the dumpster are approximately once every 1 to 2 weeks (Refs. 1, p. 13; 22).

DATE OF START-UP: According to Eaton Corporation personnel, this unit is believed to have been placed in service in 1965.

DATE OF CLOSURE: This unit was active during the VSI.

WASTES MANAGED: This dumpster is used to dispose of and recycle stainless steel.

RELEASE CONTROLS: There are no release controls other than the concrete deck which supports the dumpster.

RELEASE HISTORY: According to Eaton Corporation personnel, there have been no releases from this unit (Refs. 1, p. 13; 5).

INTERIM RECOMMENDATIONS: No Further Action. The dumpster appeared to be in satisfactory condition. No releases were seen during the inspection.

PHOTOGRAPH NO. 9

SWMU NUMBER: 10

SWMU NAME: Roll on/Roll off Dumpster

SWMU DESCRIPTION: This dumpster receives the dewatered electroplating sludge cake which is pressed at the Phase II wastewater treatment area (SWMU No. 16) (Ref. 1, p. 13). The dewatered sludge is transported to the dumpster daily with a forklift and small containers or mini-dumpsters (Ref. 22). The capacity of the dumpster is 20 cubic yards. Before the dumpster was placed in service, the dewatered sludge cake was disposed of in flexbins. When the flexbins were used, Chemical Waste Management disposed of the sludge in Fort Wayne, Indiana. Pickups of the dumpster are every 75 to 85 days (Refs. 1, p. 13; 22).

DATE OF START-UP: The dumpster was placed in service on June 15, 1989. Prior to this, flexbins were used.

DATE OF CLOSURE: This unit was active during the VSI.

WASTES MANAGED: This dumpster stores F006 electroplating sludge. Approximately 30,000 pounds per quarter of sludge are picked up by Heritage Environmental for disposal in a Indianapolis, Indiana hazardous waste disposal facility.

RELEASE CONTROLS: The dumpster rests on a concrete deck under a shelter to prevent rainwater inundation. The dumpster has a polyvinyl liner, and a tarp is placed over the top of the dumpster and its contents.

RELEASE HISTORY: According to Eaton Corporation personnel, there have been no releases from this unit (Ref. 1, p. 13).

INTERIM RECOMMENDATIONS: No Further Action. The concrete deck and dumpster appeared to be in satisfactory condition during the inspection.

PHOTOGRAPH NO. 10

SWMU NUMBER: 11

SWMU NAME: Plating Bath Line

SWMU DESCRIPTION: Some metal parts to be fabricated into electric motor control units are electroplated in this line of about 32 tanks. The 50- to 80-gallon tanks are constructed of polypropylene.

DATE OF START-UP: According to Eaton Corporation personnel, this unit is believed to have been placed in service in 1980.

DATE OF CLOSURE: This unit was active during the VSI.

WASTES MANAGED: This plating bath line consists of alkaline baths, rinsewater baths, nitric, sulfuric, and hydrochloric acid washes, zinc, copper, nickel, and tin plating baths and sodium dichromate baths. Only potential spills would be considered waste.

RELEASE CONTROLS: The entire bath line is surrounded by a containment sump formed into the concrete foundation. The floor around the baths and above the sump area is covered with steel grating. The containment sump has an automatic floor flush system activated three times per day. The bottom of the sump, is sloped toward the Phase I wastewater treatment plant (SWMU No. 15) (Ref. 1, p. 13; 21)

RELEASE HISTORY: According to Eaton Corporation personnel, there have never been any releases from this unit (Ref. 1, p. 13).

INTERIM RECOMMENDATIONS: No Further Action. The unit and containment sump appeared to be in satisfactory condition during the VSI.

PHOTOGRAPH NO. 11

SWMU NUMBER: 12

SWMU NAME: Plating Barrel Line

SWMU DESCRIPTION: Some metal parts to be fabricated into electric motor control units are electroplated in this line of about 32 tanks. The approximate 250-gallon tanks are constructed of steel and fiberglass with PVC liners.

DATE OF START-UP: According to Eaton Corporation personnel, this unit is believed to have been placed in service in 1972.

DATE OF CLOSURE: This unit was active during the VSI.

WASTES MANAGED: This plating bath line consists of alkaline baths, rinsewater baths, nitric, and hydrochloric acid washes, zinc, copper, nickel, and tin plating baths, and sodium dichromate baths. Only potential spills would be considered waste.

RELEASE CONTROLS: The entire bath line is surrounded by a containment sump formed into the concrete foundation. The floor around the baths and above the sump area is covered with steel grating. The containment sump has an automatic floor flush system activated three times per day. The bottom of the sump is sloped toward the Phase I wastewater treatment plant (Refs. 1, p. 13; 21).

RELEASE HISTORY: According to Eaton Corporation personnel, there have never been any releases from this unit (Ref. 1, p. 13).

INTERIM RECOMMENDATIONS: No Further Action. The unit and containment sump appeared to be in satisfactory condition during the VSI.

PHOTOGRAPH NO. 12

SWMU NUMBER: 13

SWMU NAME: Automatic Zinc Plating Unit

SWMU DESCRIPTION: Some metal parts to be fabricated into electric motor control units area also electroplated in this unit comprised of 33 tank stations. The stations are constructed of stainless steel with fiberglass coating and lined with polyvinyl chloride (PVC).

DATE OF START-UP: According to Eaton Corporation personnel, this unit is believed to have been placed in service in 1985.

DATE OF CLOSURE: This unit was active during the VSI.

WASTES MANAGED: This electroplating automatic plating bath unit consists of alkaline baths, soap cleaners, rinsewater baths, nitric acid dip, hydrochloric acid pickle, zinc plating baths, and sodium dichromate baths. Only potential spills would be considered waste.

RELEASE CONTROLS: The entire unit is surrounded by a containment sump formed into the concrete foundation. The floor around the baths and above the sump is covered with steel grating. The containment sump has an automatic floor flush system activated three times per day. The bottom of the sump is sloped toward the Phase I wastewater treatment plant (Refs. 1, p. 13; 21)

RELEASE HISTORY: According to Eaton Corporation personnel, there have never been any releases from this unit (Ref. 1, p. 13).

INTERIM RECOMMENDATIONS: No Further Action. The unit and containment sump appeared to be in satisfactory condition during the VSI.

PHOTOGRAPH NO. 13

SWMU NUMBER: 14

SWMU NAME: Paint Booth

SWMU DESCRIPTION: The paint booth is located just west of the electroplating area. It is used to paint the devices produced by Eaton Corporation. Airless equipment is used to propel the paint, and the finished product is allowed to air-dry. Filters in the unit are changed when necessary and disposed of in drums. The drums are stored at the drum storage area (SWMU No. 17). Monarch Sanitary picks up the drums and disposes them at the Butler County Landfill.

DATE OF START-UP: According to Eaton Corporation personnel, this unit is believed to have been placed in service in 1965.

DATE OF CLOSURE: This unit was active during the VSI.

WASTES MANAGED: The paint and related vapors are nonhazardous. The booth is permitted (No. 0-79-428) for air emissions.

RELEASE CONTROLS: The booth is vented from above. The vent has filters to contain most of the vapor emissions.

RELEASE HISTORY: According to Eaton Corporation personnel, there have never been any releases from this unit (Refs. 1, p. 13; 5)

INTERIM RECOMMENDATIONS: No Further Action. There was no evidence of releases during the VSI.

PHOTOGRAPH NO. 14

SWMU NUMBER: 15

SWMU NAME: Phase I Wastewater Treatment Plant

SWMU DESCRIPTION: The Phase I wastewater treatment area is sandwiched between the electroplating area and the painting area in the northwest portion of the facility. The area is comprised of about 40 fiberglass tanks varying in capacity from between 250 to 3500 gallons. Wastewater generated as a result of plating, metal finishing, and solvent cleaning enters the treatment area via the floor drainage system (SWMU Nos. 11, 12 and 13) and flows into five sumps. The five sumps are for floor spill, reuse water, chrome waste, continuous floor wash, and silver cyanide waste. These wastes are pumped to the treatment tanks where treatment consists of adding lime, sodium hydroxide, chlorine, sulfuric acid, and "alumafloc" for clarification. The treated wastewater, after going through processing in the unit, is then sent to Phase II of wastewater treatment (SWMU No. 16). Prior to the installation of Phase II, the effluent was discharged to the formerly used surface impoundments (SWMU No. 1) (Refs. 1, p. 13; 22).

DATE OF START-UP: According to Eaton Corporation personnel, this unit is believed to have been placed in service in 1976. Wastewater treatment prior to 1976 in unknown.

DATE OF CLOSURE: This unit was active during the VSI.

WASTES MANAGED: This unit receives wastewaters consisting of floor spill, reuse water, silver cyanide, chromium, and continuous containment floor wash.

RELEASE CONTROLS: The treatment tanks have high level alarms and pH alarms to alert plant personnel of malfunctions.

RELEASE HISTORY: According to Eaton Corporation personnel, there have never been any releases from this unit (Ref. 1, p. 13).

INTERIM RECOMMENDATIONS: No Further Action. There was no evidence of releases during the VSI.

PHOTOGRAPH NO. 15

SWMU NUMBER: 16

SWMU NAME: Phase II Wastewater Treatment Plant

SWMU DESCRIPTION: The Phase II wastewater treatment area is located in the northwest corner of the plant. The area is comprised of about ten fiberglass tanks varying in capacity from between 200 and 2000 gallons. The clarifier tank holds 10,000 gallons. Treated wastewater from Phase I (SWMU No. 15) is pumped to this area. It is neutralized with lime and sodium hydroxide. A flocculant is added to settle out any remaining solids. The effluent is then sent to the clarifier tank before being discharged to the municipal sewer system (Permit No. P010) (Refs. 1, p. 13; 5). Decant tanks in the Phase II area receive acid waste and floor spill from the Phase I area for settlement. The treated effluent from these decant tanks is discharged to the municipal sewer system, as well. Sludges are filter pressed to dewater the F006 sludge which results. The water pressed out is recycled back to the acid waste decant tanks. The F006 sludge is disposed in a dumpster (SWMU No. 10) (Refs. 1, p. 13; 23).

DATE OF START-UP: According to Eaton Corporation personnel, this unit is believed to have been placed in service in 1981.

DATE OF CLOSURE: This unit was active during the VSI.

WASTES MANAGED: Treated wastewaters from Phase I (SWMU No. 15) are further treated at this unit. A resulting sludge, designated as F006 electroplating sludge, is generated.

RELEASE CONTROLS: The treatment tanks have high level alarms and pH alarms to alert plant personnel of malfunctions.

RELEASE HISTORY: According to Eaton Corporation personnel, there have never been any releases from this unit (Ref. 1, p. 13).

INTERIM RECOMMENDATIONS: No Further Action. There was no evidence of releases from this unit during the VSI.

PHOTOGRAPH NO. 16

SWMU NUMBER: 17

SWMU NAME: Hazardous Waste Drum Storage Area

SWMU DESCRIPTION: This 60' x 12' area located just south of the painting area is used to store 55-gallon drums of hazardous and nonhazardous waste. The area was surrounded by a 4" x 6" reinforced concrete dike; however, there was no containment sump. The approximate 22 drums were all stored on pallets during the VSI. The concrete floor within the storage area was epoxy-sealed to resist acid or caustic spills. The drums of waste are shipped by Heritage Transport, Inc. to the Heritage Environmental Services Facility in Indianapolis, Indiana.

DATE OF START-UP: According to Eaton Corporation personnel, this unit is believed to have been placed in service in 1989. Prior to this, the area was contained with steel angles and silicon sealant.

DATE OF CLOSURE: This unit was active during the VSI.

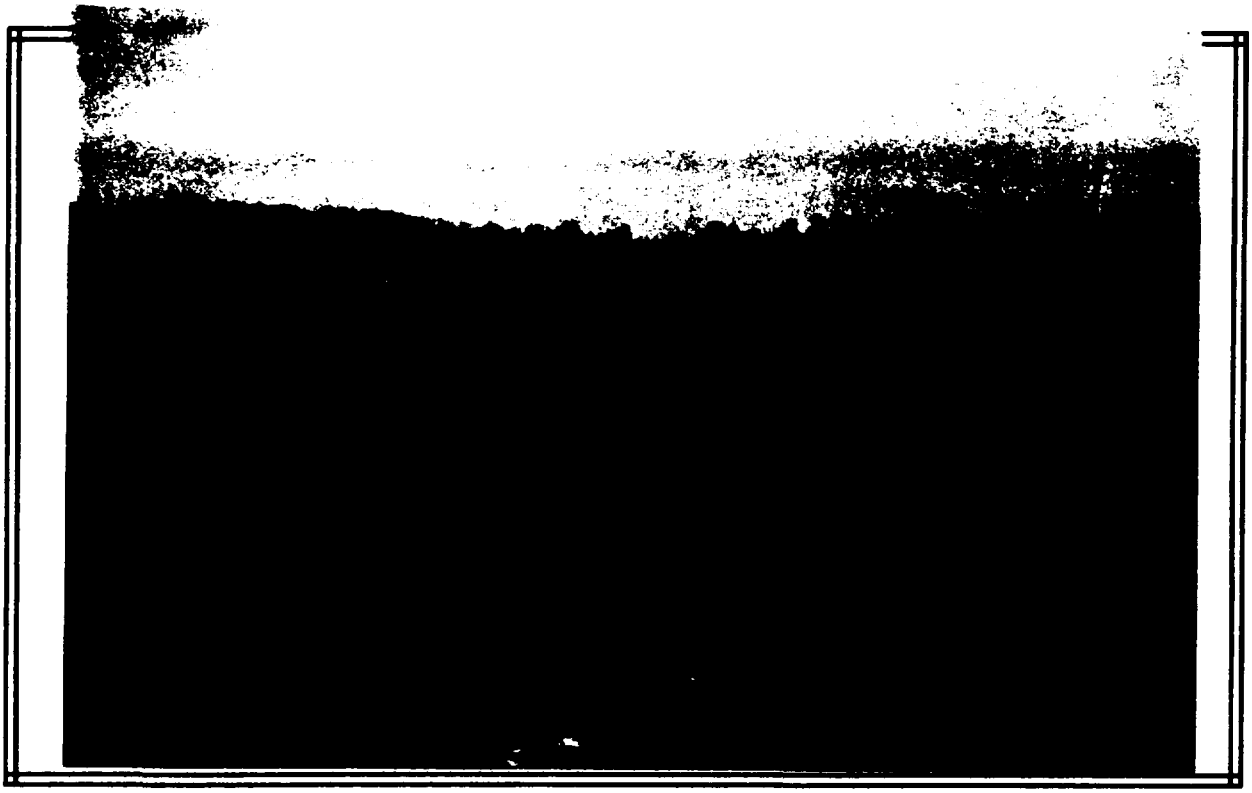
WASTES MANAGED: During the VSI, the drums stored in the storage area contained either nonhazardous paint waste, lubricating oil, F003 and F005 mixed waste, F001 waste, freon waste, 1,1,1-trichloroethane, nickel waste, or F006 sludge.

RELEASE CONTROLS: The concrete deck is epoxy-coated to resist acid or caustic corrosion. The area is contained by a 4" x 6" reinforced concrete dike.

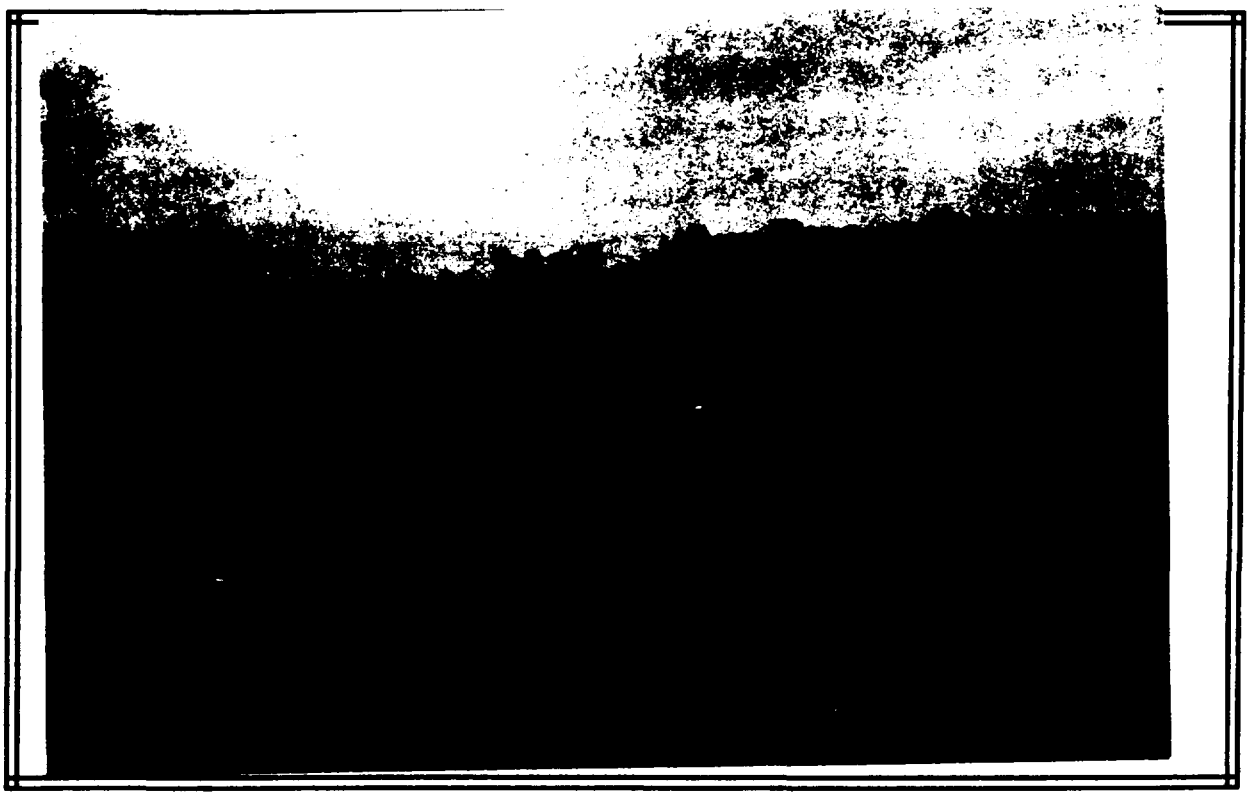
RELEASE HISTORY: According to Eaton Corporation personnel, there have never been any releases from this unit (Refs. 1, p. 13; 5).

INTERIM RECOMMENDATIONS: No Further Action. There was no evidence of releases from this unit during the VSI. The concrete deck and diking appeared to be in satisfactory condition.

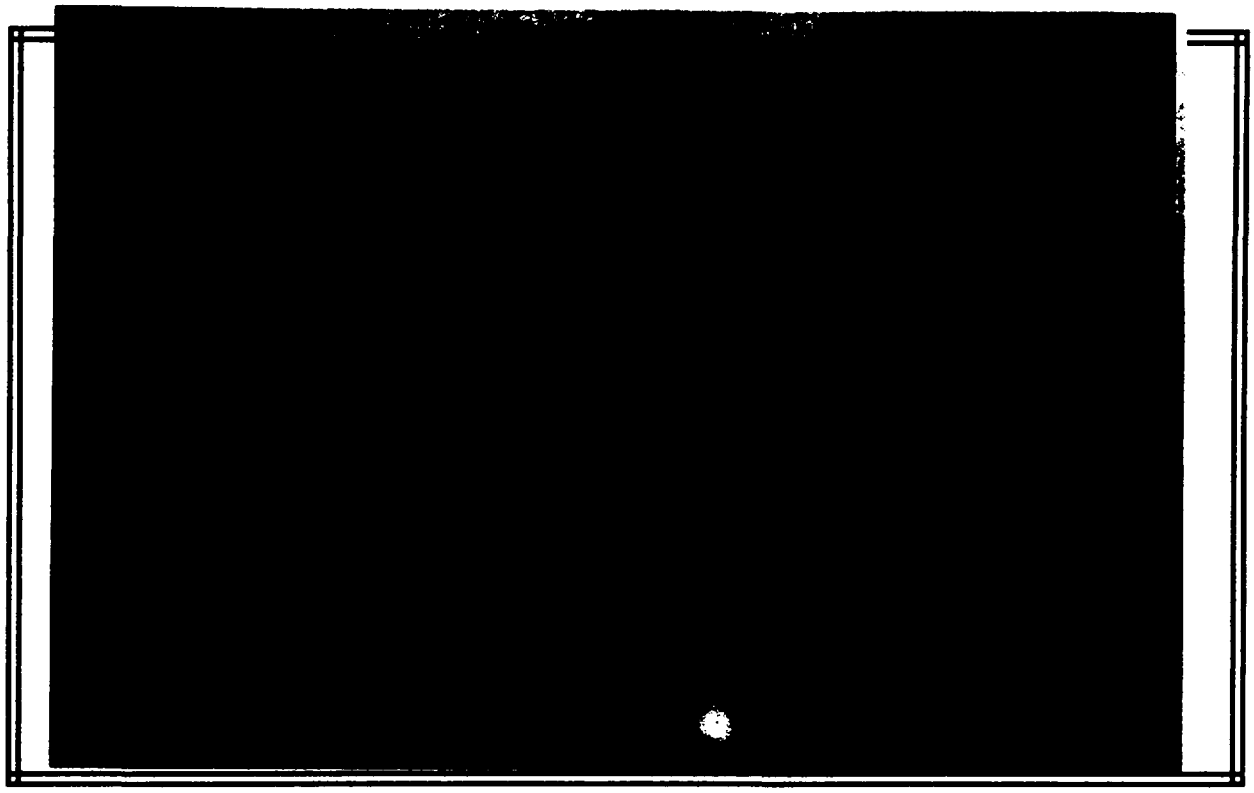
PHOTOGRAPH NO. 17



Photograph No. 1A (SWMU No. 1) Easternmost panoramic photo of the former location of the settlement and sludge drying impoundments.

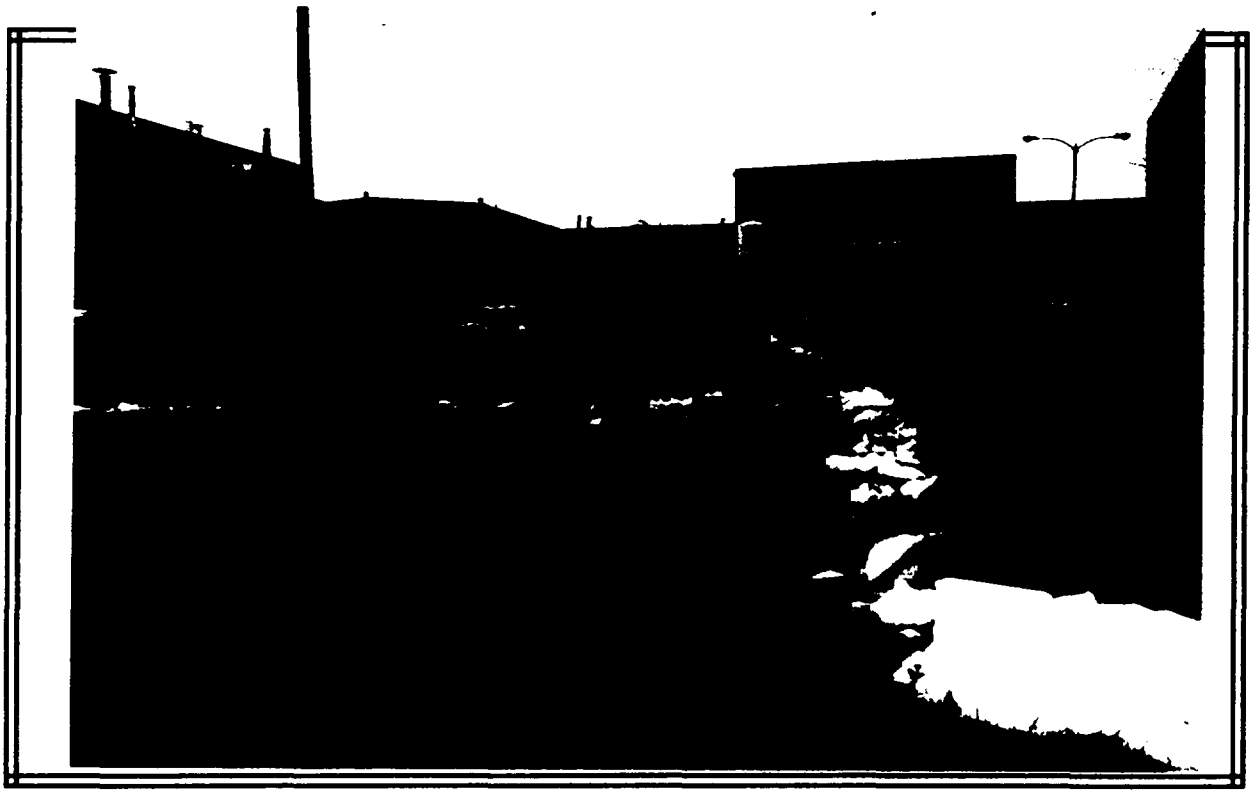


Photograph No. 1B (SWMU No. 1) Northernmost panoramic photo of the former location of the settlement and sludge drying impoundments.

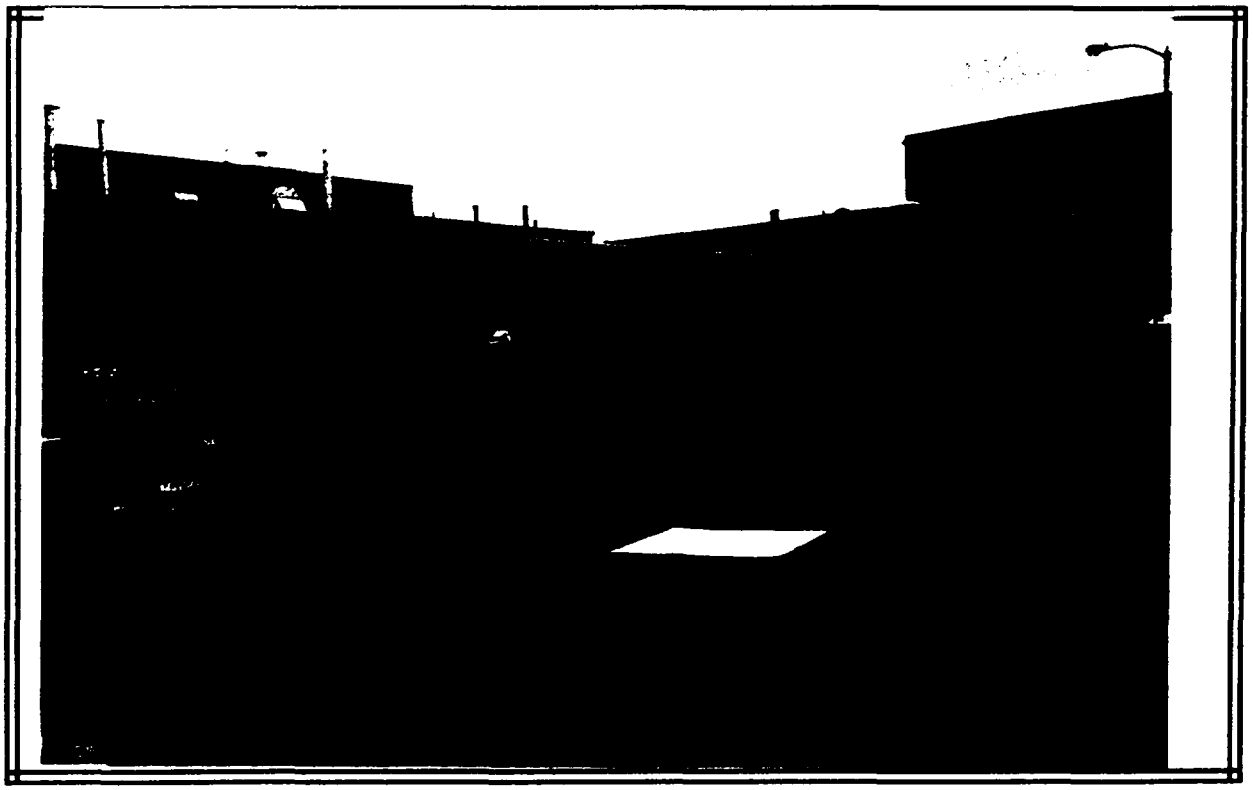


Photograph No. 1C (SWMU No. 1) Westernmost panoramic photo of the former location of the settlement and sludge drying impoundments.

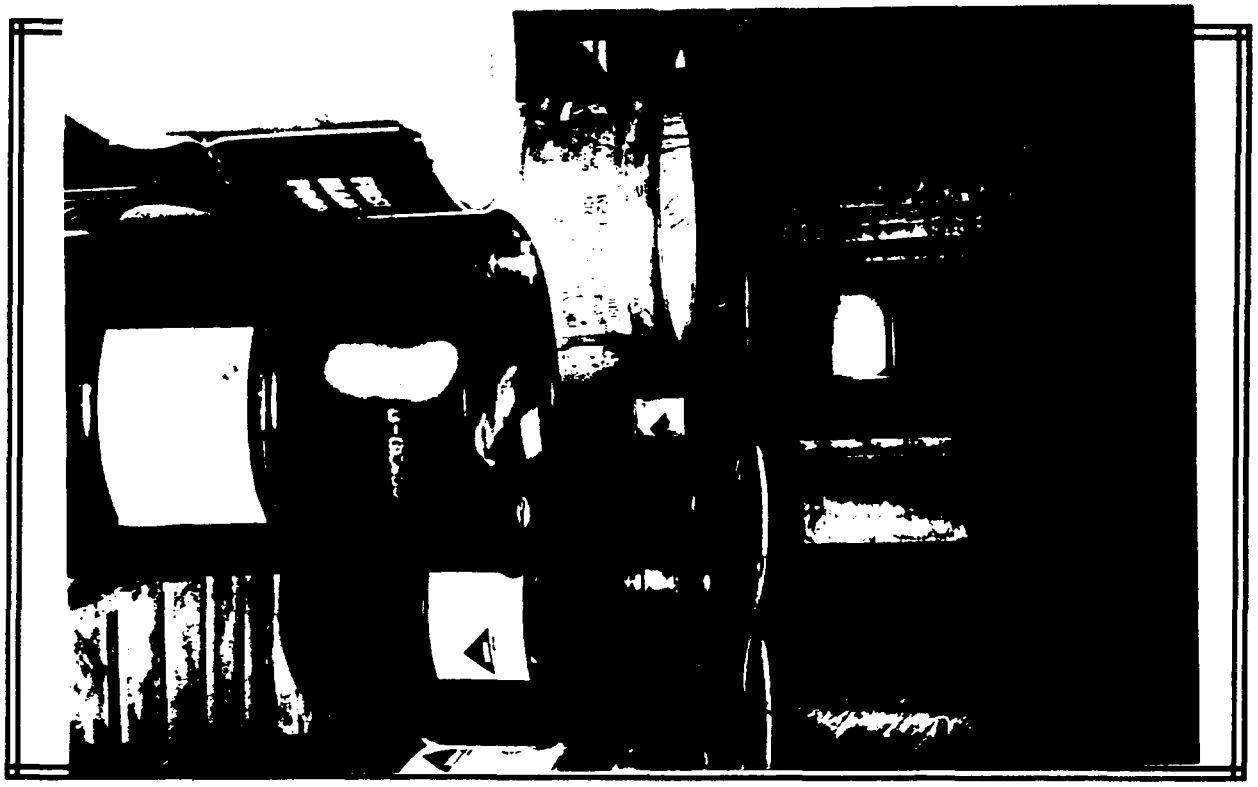
Photograph No. 2 (SWMU No. 2) Photograph of the discharge sinkhole through the northwest fence. The area appeared swampy, rather than clearly defined.



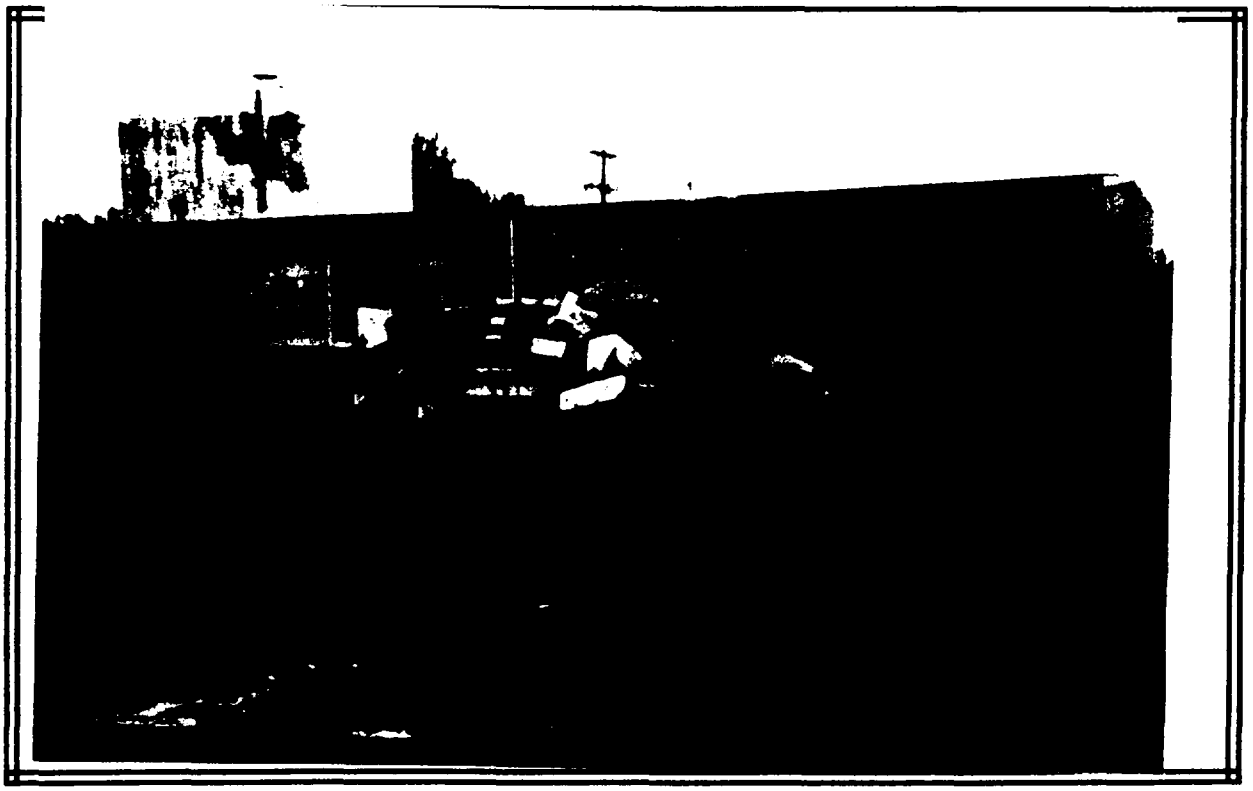
Photograph No. 3 (AOC No. 3) Sealed or dry motors and steel racks stored mostly on grass.



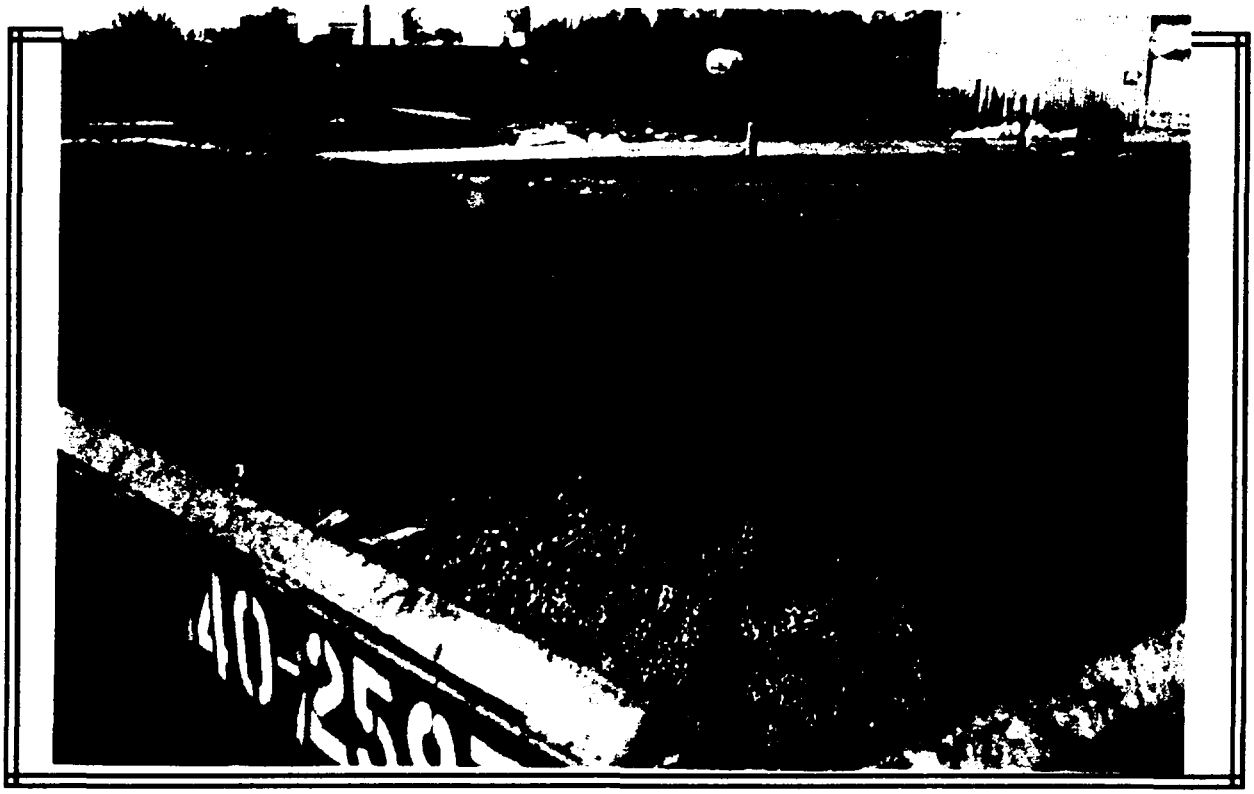
Photograph No. 4 (SWMU No. 4) Various metal scrap, wooden pallets, and abandoned equipment.



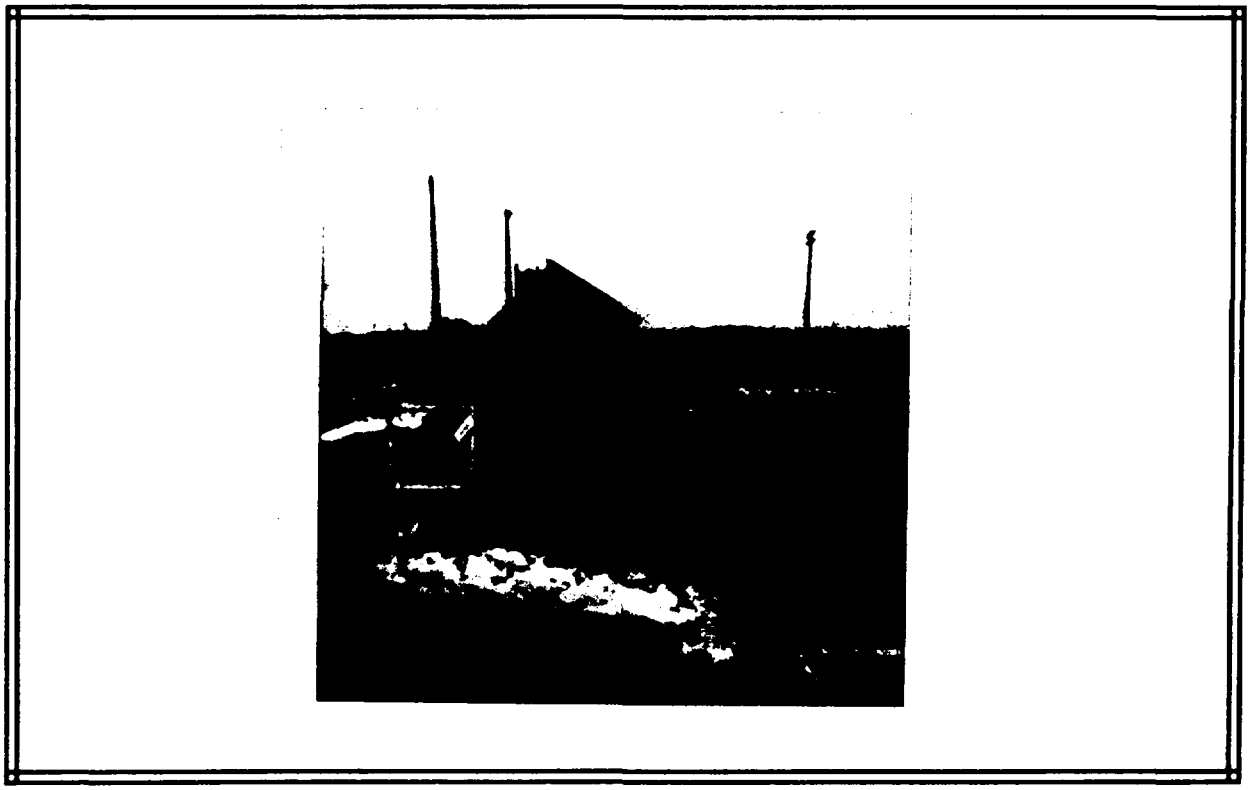
Photograph No. 5 (SWMU No. 5) View inside of one of the storage sheds. Most of the drums were empty; however, several were either full or partially full.



Photograph No. 6 (SWMU No. 6) Dumpster used to dispose of wooden pallets.

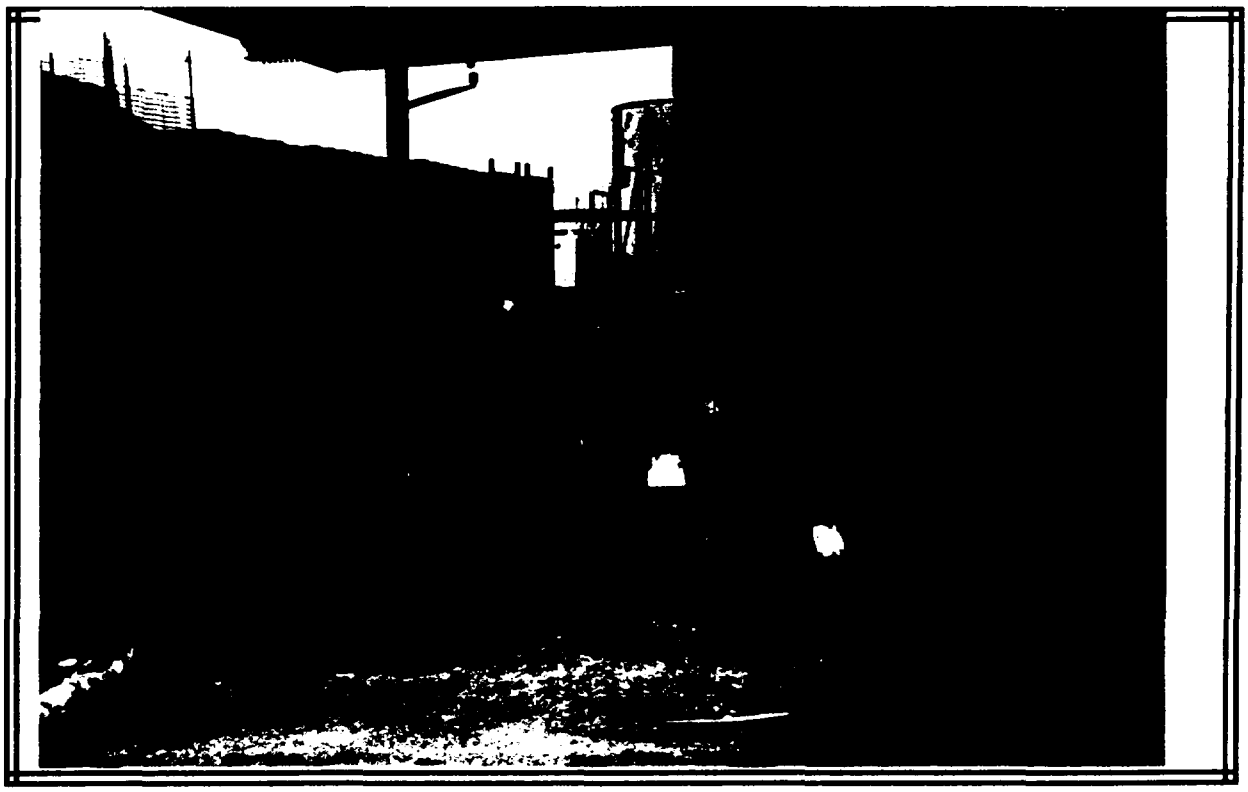


Photograph No. 7 (SWMU No. 7) Dumpster used to dispose of common steel scrap.

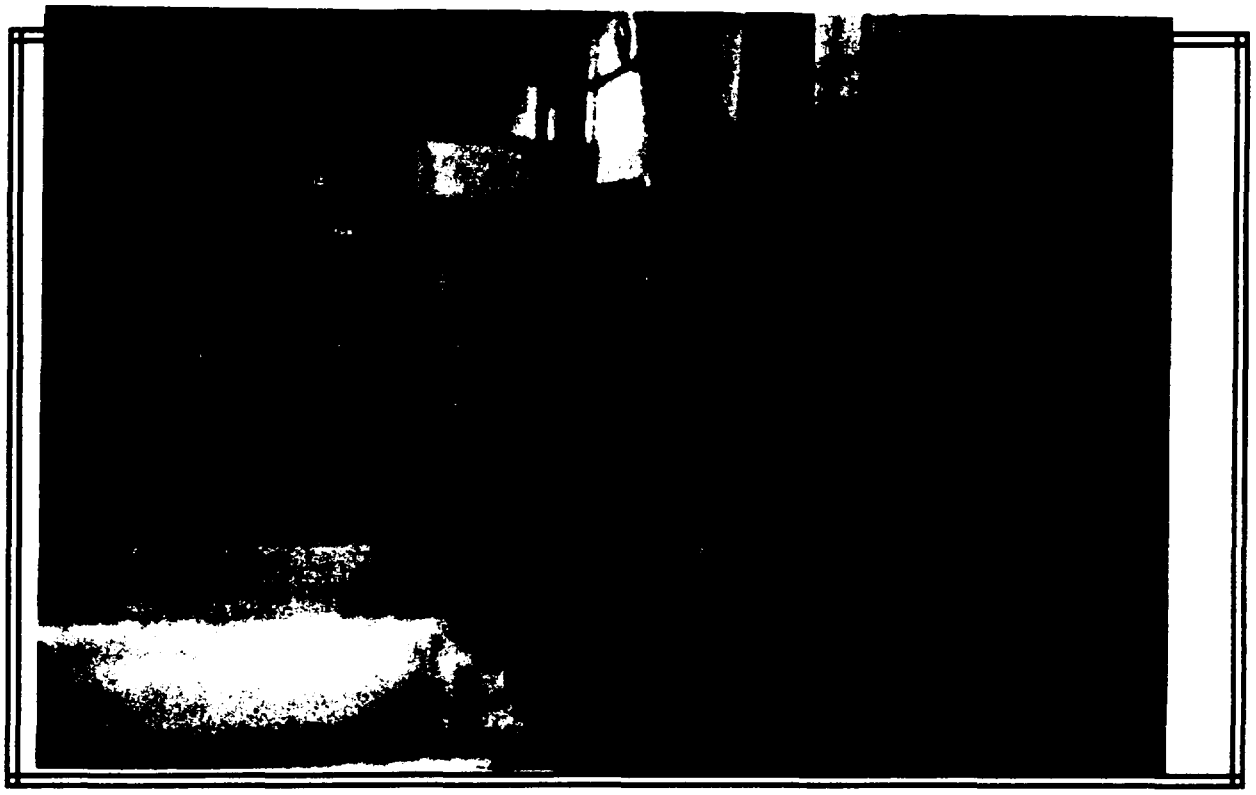


Photograph No. 8 (SWMU No. 8) Dumpster used to dispose of mixed steel scrap.

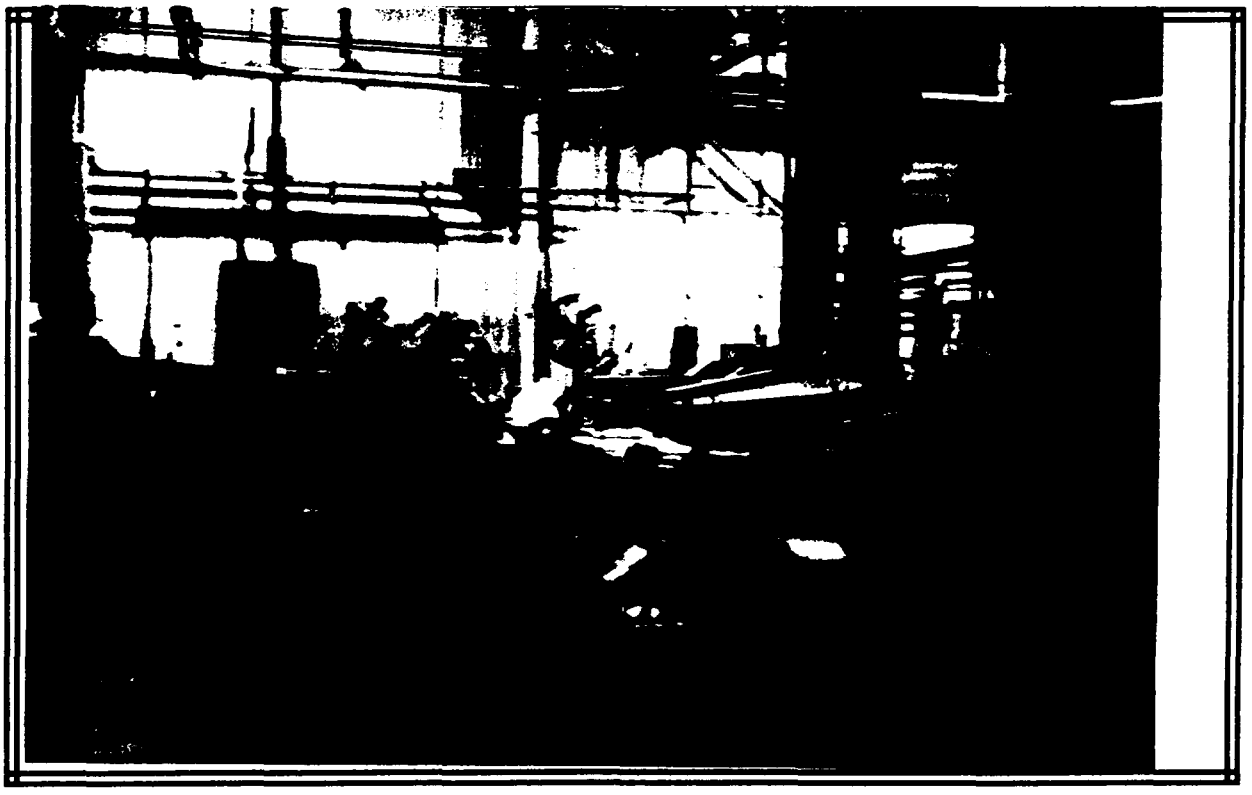
Photograph No. 9 (SWMU No. 9) Dumpster used to dispose of stainless steel scrap.



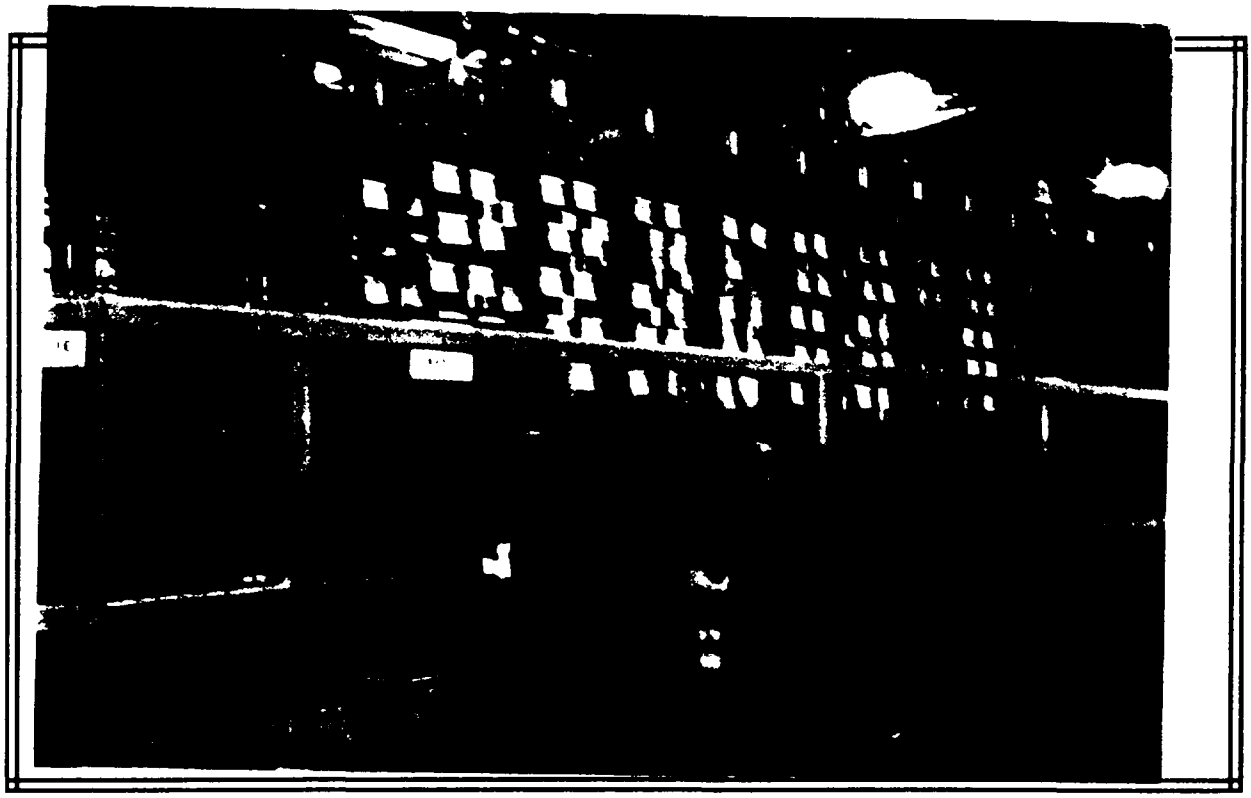
Photograph No. 10 (SWMU No. 10) Dumpster used to dispose of F006 electroplating sludge.



Photograph No. 11 (SWMU No. 11) Electroplating line where some metal parts are plated prior to assembly.



Photograph No. 12 (SWMU No. 12) Plating barrel line used to plate some metal parts prior to assembly.

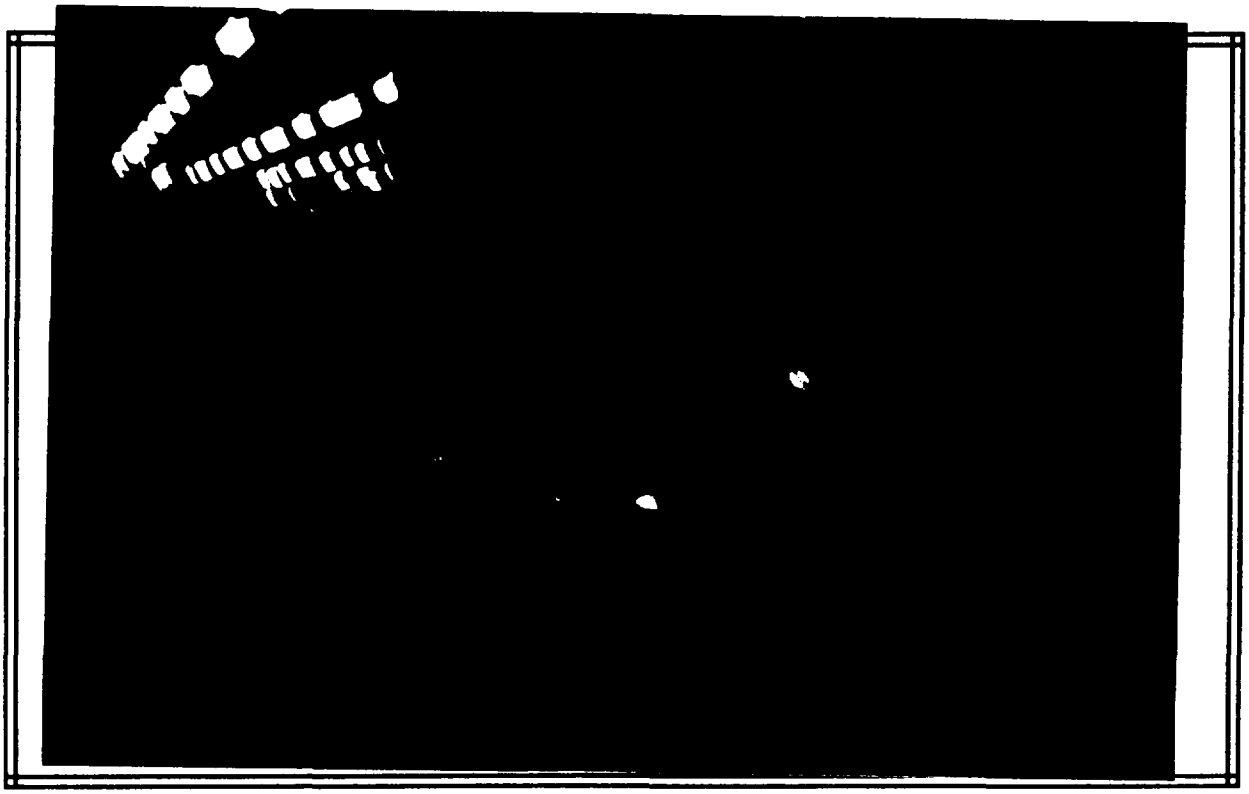


Photograph No. 13 (SWMU No. 13) Auto-zinc plating unit used to plate some metal parts prior to assembly.

Photograph No. 14 (SWMU No. 14) Paint booth used to airlessly paint devices as part of final production.

Photograph No. 15 (SWMU No. 15) View of the Phase I Wastewater Treatment Plant.

Photograph No. 16 (SWMU No. 16) View of the Phase II Wastewater Treatment Plant.



Photograph No. 17 (SWMU No. 17) Hazardous and nonhazardous waste drum storage area. Note 4" x 6" diking and drums on pallets.

REFERENCES

1. NUS Corporation Field Logbook No. F4-1896 for Eaton Corporation, TDD No. F4-8910-22. Documentation of Visual Site Inspection and offsite reconnaissance, December 11, 1989.

2. Plant plan layout for the Eaton Corporation, Bowling Green Kentucky; obtained from Steve Fesko, principal engineer, Eaton Corporation, December 11, 1989. No scale.

3. Site plan layout for Cutler-Hammer, Inc., Bowling Green Kentucky (Eaton Corporation), 1973; obtained from Steve Fesko, principal engineer, Eaton Corporation, December 11, 1989. Scale: 1 in = 100 ft ±.

4. Barry Burrus, Chief, Uncontrolled Sites Section, Kentucky Division of Waste Management, memorandum to Caroline P. Haight, Manager, Permit Review Branch, Kentucky Division of Waste Management, March 21, 1984. Subject: Uncontrolled site closure for Eaton Corporation.

5. Steve Fesko, Principal Engineer, Eaton Corporation, letter to Mitch Cohen, NUS Corporation, January 3, 1990. Subject: Information regarding Eaton Corporations, Bowling Green facility.

6. Roland McAbee, Manufacturing Services Manager, Eaton Corporation, memorandum to Mitch Cohen, NUS Corporation, December 11, 1989. Subject: Eaton Corporation's, nature of operations.

7. Alliance Technologies Corporation, "Inspection to assess compliance with closure/post-closure requirements at Eaton Corporation Bowling Green, Kentucky KYD098950306," Draft Final Report, prepared for the Office of Waste Programs Enforcement of the EPA (April 1987).

8. Mohammed Alauddin, RCRA Section, Kentucky Division of Waste Management, telephone conversation with Mitch Cohen, NUS Corporation, January 3, 1990. Subject: RCRA history for Eaton Corporation.

9. J. Alex Barber, Kentucky Division of Waste Management, letter to Mr. H. Kitscha, Vice President, Eaton Corporation, December 11, 1984. Subject: Actual closure of Hazardous Waste Facility KYD098950306.

10. Jack Watkins, Kentucky Division of Waste Management, telephone conversation with Mitch Cohen, NUS Corporation, December 18, 1989. Subject: Current RCRA status of Eaton Corporation, Bowling Green, Kentucky.

11. Nicholas Crawford, Ph.D, Dye Traces of Loading Ramp Drainage Well and Paint Vats at D.E.S.A. Corporation, Industrial Drive, Bowling Green, Kentucky, Submitted to Kentucky Dept. of Natural Resources and Environment Protection Cabinet and the U.S. EPA, September 17, 1985.

12. T. Wm. Lambert, Water in a Limestone Terrain in the Bowling Green Area, Warren County, Kentucky, Report of Investigations 17 (University of Kentucky, Lexington: U.S. Geological Survey, 1976), pp. 2, 3, 18-26, plates 1 and 3.

13. U.S. Dept. of Commerce, Climatic Atlas of the United States (Washington D.C.: GPO, June 1968) Reprint: 1983, National Oceanic and Atmospheric Administration, pp. 43, 63.

14. U.S. Dept. of Agriculture, Rainfall Frequency Atlas of the United States, Technical paper No. 40 (Washington, D.C.: GPO, 1961), p. 93.

15. Nicholas C. Crawford, Christopher G. Groves, Thomas P. Feeney, and Benjamin J. Keller, Agriculture and Urban Nonpoint Source Pollution Impacts on Karst Aquifers in the Pennyroyal Karst Region of Kentucky, Part 1, Hydrogeology of the Lost River Karst Groundwater Basin, Warren County, Kentucky (Western Kentucky University: Bowling Green, Kentucky, 1987). pp. 16-20, 28, plate 3.

16. NUS Corporation Field Logbook No. F4-1191 of Colt Industries, Holley Carburetor Division Plant No. 7, TDD No. F4-8806-11. Documentation of screening site inspection, January 10-12, 1989.

17. R.F. Brown and T.W. Lambert, Availability of Ground Water in Allen, Barren, Edmonson, Green, Hart, Logan, Metcalfe, Monroe, Simpson, and Warren Counties, Kentucky, Hydrologic Investigations Atlas HA-32 (Washington, D.C.: U.S. Geological Survey, 1962). Sheet 3 of 3.

18. John McGregor, Kentucky Fish and Wildlife Service, telephone conversation with Belinda Brock, NUS Corporation, March 1, 1988. Subject: Critical habitats in Warren County.

19. U.S. Fish and Wildlife Service, Endangered and Threatened Species of the Southeastern United States, (Atlanta, Georgia: 1988).

20. Benjy Kinman, Kentucky Department of Fish and Wildlife, Fisheries Division, telephone conversation with Eric Corbin, NUS Corporation, December 3, 1987. Subject: Recreational use of the Barren River.

21. Wayne Garfinkel, Chief, Kentucky/Tennessee Unit, Waste Engineering Section, EPA, letter to Susan Deihl, Chief, North Unit, Site Assessment Branch, EPA, December 2, 1988. Subject: Inspection to assess compliance with closure/post-closure requirements report, Eaton Corporation, KYD098950306.

22. Roland McAbee, Manufacturing Services Manager, Eaton Corporation, letter to Mitch Cohen, NUS Corporation, January 24, 1990. Subject: Waste disposal activities at Eaton Corporation.

Appendix B

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 1 SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
KY	D098950306

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER				
Eaton Corporation	2901 Fitzgerald Industrial Drive				
03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Bowling Green	KY	42101	Warren	114	
09 COORDINATES LATITUDE: 36 57 30.1	LONGITUDE: 086 28 47.0				

10 DIRECTIONS TO SITE (Starting from nearest public road)

From Bowling Green, take U.S. 31 W By-Pass (Nashville Road) south to Dishman Lane. Turn right and go to first right, which is Fitzgerald Ind. Dr. Eaton Corporation is 0.25 miles on left.

III. RESPONSIBLE PARTIES

01 OWNER (If known)	02 STREET (Business, mailing, residential)		
Eaton Corporation	1111 Superior Avenue		
03 CITY	04 STATE	05 ZIP CODE	06 TELEPHONE NUMBER
Cleveland	OH	44114	(216) 523-5000
07 OPERATOR (If known and different from owner)	08 STREET (Business, mailing, residential)		
Steve Kavanaugh	2901 Fitzgerald Industrial Drive		
09 CITY	10 STATE	11 ZIP CODE	12 TELEPHONE NUMBER
Bowling Green	KY	42101	(505) 782-1555

13 TYPE OF OWNERSHIP (Check one)

[X] A. PRIVATE [ ] B. FEDERAL _____ (Agency name) [ ] C. STATE [ ] D. COUNTY [ ] E. MUNICIPAL
[ ] F. OTHER _____ (Specify) [ ] G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)

[ ] A. RCRA 3001 DATE RECEIVED: [ ] B. UNCONTROLLED WASTE SITE (CERCLA 103c) DATE RECEIVED [X] C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION

[ ] YES [ ] NO DATE: 12/11/89

BY (Check all that apply)

[ ] A. EPA [ ] B. EPA CONTRACTOR [ ] C. STATE [ ] D. OTHER CONTRACTOR
[ ] E. LOCAL HEALTH OFFICIAL [ ] F. OTHER _____ (Specify)

CONTRACTOR NAME(S): NUS Corp.

02 SITE STATUS (Check one)

[ ] A. ACTIVE [ ] B. INACTIVE [ ] C. UNKNOWN

03 YEARS OF OPERATION

1965 (BEGINNING YEAR) | present (ENDING YEAR) [ ] UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED

Electroplating wastes, F006 sludges, water-based paints, paint wastes, used lubricating oil, waste solvents.

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION

The facility closed four surface impoundments that were used to settle solids (F006 sludge) from wastewater. Closure was certified by the state on December 11, 1984.

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents)

[ ] A. HIGH (Inspection required promptly) [ ] B. MEDIUM (Inspection required promptly) [ ] C. LOW (Inspect on time available basis) [ ] D. NONE (No further action needed, complete disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NUMBER

04 PERSON RESPONSIBLE FOR ASSESSMENT: Mitch Cohen 05 AGENCY: NUS 06 ORGANIZATION: FIT 07 TELEPHONE NO: 404-938-7710 08 DATE: 1 9 90

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
KY	D098950306

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- ☐ A. SOLID
- ☐ B. POWDER, FINES
- ☐ C. SLUDGE
- ☐ D. OTHER _____ (Specify)
- ☐ E. SLURRY
- ☐ F. LIQUID
- ☐ G. GAS

02 WASTE QUANTITY AT SITE

(Measures of waste quantities must be independent)

TONS _____
CUBIC YARDS @ 3500
NO. OF DRUMS @ 1800

03 WASTE CHARACTICS (Check all that apply)

- ☐ A. TOXIC
- ☐ B. CORROSIVE
- ☐ C. RADIOACTIVE
- ☐ D. PERSISTENT
- ☐ E. SOLUBLE
- ☐ F. INFECTIOUS
- ☐ G. FLAMMABLE
- ☐ H. IGNITABLE
- ☐ I. HIGHLY VOLATILE
- ☐ J. EXPLOSIVE
- ☐ K. REACTIVE
- ☐ L. INCOMPATABLE
- ☐ M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE	@ 3500	CU YDS	Disposed of at CECUS Environmental Add'l 1800
OLW	OILY WASTE			drums of wastewater treated in onsite treatment
SOL	SOLVENT			plans
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
MES	nickel		impoundment	79.6	ppm
MES	chromium		impoundment	2.72	ppm
OCC	cyanide		impoundment	0.32	ppm

V. FEEDSTOCKS (See Appendix for CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER

VI. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis reports)

Inspection to assess compliance with clsoure/post closure requirements at Eaton Corporation

Preliminary Assessment - 3/19/84

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
KY	D098950306

II. HAZARDUS CONDITIONS AND INCIDENTS *(Continued)*

01 ☐ J. DAMAGE TO FLORA 02 ☐ OBSERVED (DATE:) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

Leaching of F006 sludges may have impacted groundwater in and around the sinkhole, from wastewater discharge.

01 ☐ K. DAMAGE TO FUANA 02 ☐ OBSERVED (DATE:) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION *(Include name(s) of species)*

Surface water in the area (sinkhole) is actually surface expressed groundwater. Groundwater may have been impacted by discharge to the sinkhole

01 ☐ L. CONTAMINATION OF FOOD CHAIN 02 ☐ OBSERVED (DATE:) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ M. UNSTABLE CONTAINMENT OF WASTES 02 ☐ OBSERVED (DATE:) ☐ POTENTIAL ☐ ALLEGED
Spills, runoff, standing liquids, leaking drums)
03 POPULATION POTENTIALLY AFFECTED: 04 NARRATIVEDESCRIPTION

01 ☐ N. DAMAGE TO OFFSITE PROPERTY 02 ☐ OBSERVED (DATE:) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs 02 ☐ OBSERVED (DATE: **7/30/86**) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

Several post-closure samples exceeded the two-times background limit agreed to by the state. Closure was certified nonetheless.

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING 02 ☐ OBSERVED (DATE:) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

III. TOTAL POPULATION POTENTIALLY AFFECTED :

IV. COMMENTS

V. SOURCES OF INFORMATION *(Cite specific references, e.g. state files, sample analysis, reports)*

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
KY	D098950306

II. HAZARDUS CONDITIONS AND INCIDENTS

01 ☐ A. GROUNDWATER CONTAMINATION
03POPULATION POTENTIALLY AFFECTED:
02 ☐ OBSERVED (DATE:)
04 NARRATIVE DESCRIPTION
☐ POTENTIAL ☐ ALLEGED

Potential releases from impoundments may have impacted flora near the sinkhole

01 ☐ B. SURFACE WATER CONTAMINATION
03POPULATION POTENTIALLY AFFECTED:
02 ☐ OBSERVED (DATE:)
04 NARRATIVE DESCRIPTION
☐ POTENTIAL ☐ ALLEGED

Potential releases from impoundments may have impacted fauna near the sinkhole

01 ☐ C. CONTAMINATION OF AIR
03POPULATION POTENTIALLY AFFECTED:
02 ☐ OBSERVED (DATE:)
04 NARRATIVE DESCRIPTION
☐ POTENTIAL ☐ ALLEGED

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS
03POPULATION POTENTIALLY AFFECTED:
02 ☐ OBSERVED (DATE:)
04 NARRATIVE DESCRIPTION
☐ POTENTIAL ☐ ALLEGED

F006 electroplating sludges from the impoundments may leached into the groundwater near the sinkhole

01 ☐ E. DIRECT CONTACT
03POPULATION POTENTIALLY AFFECTED:
02 ☐ OBSERVED (DATE:)
04 NARRATIVE DESCRIPTION
☐ POTENTIAL ☐ ALLEGED

01 ☐ F. CONTAMINATION OF SOIL
03AREA POTENTIALLY AFFECTED: ACRES
02 ☐ OBSERVED (DATE:)
04 NARRATIVE DESCRIPTION
☐ POTENTIAL ☐ ALLEGED

01 ☐ G. DRINKING WATER CONTAMINATION
03POPULATION POTENTIALLY AFFECTED:
02 ☐ OBSERVED (DATE:)
04 NARRATIVE DESCRIPTION
☐ POTENTIAL ☐ ALLEGED

01 ☐ H. WORKER EXPOSURE/INJURY
03WORKERS POTENTIALLY AFFECTED:
02 ☐ OBSERVED (DATE:)
04 NARRATIVE DESCRIPTION
☐ POTENTIAL ☐ ALLEGED

01 ☐ I. POPULATION EXPOSURE/INJURY
03POPULATION POTENTIALLY AFFECTED:
02 ☐ OBSERVED (DATE:)
04 NARRATIVE DESCRIPTION
☐ POTENTIAL ☐ ALLEGED

Logbook - Visual site inspection documentation - Dec. 11, 1989.

RECONNAISSANCE CHECKLIST FOR HRS2 CONCERNS

Instructions: Obtain as much "up front" information as possible prior to conducting fieldwork. Complete the form in as much detail as you can, providing attachments as necessary. Cite the source for all information obtained.

Site Name: Eaton Corporation
City, County, State: Bowling Green, Warren County, KY
EPA ID No.: KYD098950306
Person responsible for form: Mitch Cohen
Date: December 11, 1989

Air Pathway

Describe any potential air emission sources onsite: The air vents for the paint booth is permitted (Ref. 5).

Identify any sensitive environments within 4 miles: There are no sensitive environments within 4 miles of the facility.

Identify the maximally exposed individual (nearest residence or regularly occupied building - workers do count): There are trailer parks located east (Ref. 1). (Workers if plant open).

Groundwater Pathway

Identify any areas of karst terrain: The whole of Bowling Green is in karst terrain (Refs. 11; 14).

Identify additional population due to consideration of wells completed in overlying aquifers to the AOC: Private wells are 50-350 feet deep in the area (Refs. 11; 14).

Do significant targets exist between 3 and 4 miles from the site? Approximately 101 private wells are located between the 3- and 4-mile radii.

Is the AOC a sole source aquifer according to Safe Drinking Water Act? (i.e. is the site located in Dade, Broward, Volusia, Putnam, or Flagler County, Florida): No

Surface Water Pathway

Are there intakes located on the extended 15-mile migration pathway? No, the city of Bowling Green has two intakes located 11 and 14 miles upstream, respectively (Ref. 1) (Appendix A).

Are there recreational areas, sensitive environments, or human food chain targets (fisheries) along the extended pathway? Fishing exists in the Barren River (Ref. 19).

Onsite Exposure Pathway

Is there waste or contaminated soil onsite at 2 feet below land surface or higher? The former impoundments were 5 feet deep.

Is the site accessible to non-employees (workers do not count)? No, the facility is fenced (Ref. 1).

Are there residences, schools, or day care centers onsite or in close proximity? No

Are there barriers to travel (e.g., a river) within one mile? No

HAZARD RANKING SYSTEM SCORING SUMMARY

FOR

EATON CORP.
EPA SITE NUMBER KYD098950306
BOWLING GREEN
WARREN COUNTY, KY
EPA REGION: 4

SCORE STATUS: IN PREPARATION

SCORED BY MITCH COHENLD
OF NUS CORP.
ON 02/19/90

DATE OF THIS REPORT: 02/19/90
DATE OF LAST MODIFICATION: 02/19/90

GROUND WATER ROUTE SCORE :	31.43
SURFACE WATER ROUTE SCORE:	10.18
AIR ROUTE SCORE :	0.00
MIGRATION SCORE :	19.10

HRS GROUND WATER ROUTE

CATEGORY/FACTOR	RAW DATA	M. VALUE	
1. OBSERVED RELEASE	NO	0	
2. ROUTE CHARACTERISTICS			
DEPTH TO WATER TABLE	50 FEET		
DEPTH TO BOTTOM OF WASTE	6 FEET		
DEPTH TO AQUIFER OF CONCERN	44 FEET	2	4
PRECIPITATION	48.0 INCHES		
EVAPORATION	36.0 INCHES		
NET PRECIPITATION	12.0 INCHES	2	2
PERMEABILITY	1.0X10-3 CM/SEC	2	2
PHYSICAL STATE		3	3
TOTAL ROUTE CHARACTERISTICS SCORE:			11
3. CONTAINMENT		3	3
4. WASTE CHARACTERISTICS			
TOXICITY/PERSISTENCE:COPPER & COMPOUNDS,NOS			18
WASTE QUANTITY CUBIC YDS	0		
DRUMS	0		
GALLONS	0		
TONS	7200		
TOTAL	7200 CUBIC YDS	8	8
TOTAL WASTE CHARACTERISTICS SCORE:			26
5. TARGETS			
GROUND WATER USE		3	3
DISTANCE TO NEAREST WELL AND MATRIX VALUE	5300 FEET	12	12
TOTAL POPULATION SERVED	555		
NUMBER OF HOUSES	146		
NUMBER OF PERSONS	0		
NUMBER OF CONNECTIONS	0		
NUMBER OF IRRIGATED ACRES	0		
TOTAL TARGETS SCORE:			21
GROUND WATER ROUTE SCORE (Sgw)			13

HRS SURFACE WATER ROUTE SCORE

CATEGORY / FACTOR	RAW DATA	ASN. VALUE	SCORE
1. OBSERVED RELEASE	NO	0	0
2. ROUTE CHARACTERISTICS			
SITE LOCATED IN SURFACE WATER	YES		
SITE WITHIN CLOSED BASIN	YES		
FACILITY SLOPE	0.0 %		
INTERVENING SLOPE	0.0 %	3	3
24-HOUR RAINFALL	2.8 INCHES	2	2
DISTANCE TO DOWN-SLOPE WATER	0 FEET	3	6
PHYSICAL STATE	3		3
TOTAL ROUTE CHARACTERISTICS SCORE:			14
3. CONTAINMENT	3		3
4. WASTE CHARACTERISTICS			
TOXICITY/PERSISTENCE: COPPER & COMPOUNDS, NOS			18
WASTE QUANTITY CUBIC YDS	0		
DRUMS	0		
GALLONS	0		
TONS	7200		
TOTAL	7200 CU. YDS	8	8
TOTAL WASTE CHARACTERISTICS SCORE:			26
5. TARGETS			
SURFACE WATER USE		2	2
DISTANCE TO SENSITIVE ENVIRONMENTS		0	0
COASTAL WETLANDS	NONE		
FRESHWATER WETLANDS	NONE		
CRITICAL HABITAT	NONE		
DISTANCE TO STATIC WATER	10000 FEET		
DISTANCE TO WATER SUPPLY INTAKE	15900 FEET		
AND MATRIX VALUE		0	0
TOTAL POPULATION SERVED	0		
NUMBER OF HOUSES	0		
NUMBER OF PERSONS	0		
NUMBER OF CONNECTIONS	0		
NUMBER OF IRRIGATED ACRES	0		
TOTAL TARGETS SCORE:			2
SURFACE WATER ROUTE SCORE (S_{sw}) = 10.15			

HRS AIR ROUTE SCORE

CATEGORY/FACTOR	RAW DATA	ASN. VALUE
1. OBSERVED RELEASE	NO	0
2. WASTE CHARACTERISTICS		
REACTIVITY:		MATRIX VALUE: N/A
INCOMPATIBILITY		
TOXICITY		
WASTE QUANTITY CUBIC YARDS		
DRUMS		
GALLONS		
TONS		
TOTAL		
TOTAL WASTE CHARACTERISTICS SCORE:		N/A
3. TARGETS		
POPULATION WITHIN 4-MILE RADIUS		
0 to 0.25 mile		
0 to 0.50 mile		
0 to 1.0 mile		
0 to 4.0 miles		
DISTANCE TO SENSITIVE ENVIRONMENTS		
COASTAL WETLANDS		
FRESH-WATER WETLANDS		
CRITICAL HABITAT		
DISTANCE TO LAND USES		
COMMERCIAL/INDUSTRIAL		
PARK/FOREST/RESIDENTIAL		
AGRICULTURAL LAND		
PRIME FARMLAND		
HISTORIC SITE WITHIN VIEW?		
TOTAL TARGETS SCORE:		N/A

AIR ROUTE SCORE (Sa) = 0.00

SITE: EATON CORP.
AS OF: 08/17/[illegible]

GROUND WATER ROUTE SCORE

ROUTE CHARACTERISTICS		11
CONTAINMENT	X	3
WASTE CHARACTERISTICS	X	26
TARGETS	X	21

= 18018 /57,330 X 100 = 31.43

SURFACE WATER ROUTE SCORE

ROUTE CHARACTERISTICS		14
CONTAINMENT	X	3
WASTE CHARACTERISTICS	X	26
TARGETS	X	6

= 6552 /64,350 X 100 = 10.18

AIR ROUTE SCORE

OBSERVED RELEASE 0 /35,100 X 100 = 0.00

SUMMARY OF MIGRATION SCORE CALCULATIONS

	S
GROUND WATER ROUTE SCORE (S_{gw})	31.43
SURFACE WATER ROUTE SCORE (S_{sw})	10.18
AIR [illegible] SCORE (S_{a})	[illegible]

S^2_{gw} = [illegible]

$\sqrt{(S^2_{gw} + S^2_{sw} + S^2_{air})}$ = [illegible]

$S_M = \sqrt{(S^2_{gw} + S^2_{sw} + S^2_{air})}/1.73$

Reference No. 1

"Rite in the Rain"®

ALL-WEATHER

LEVEL

Notebook No. 311

F4-1896

EATON CORPORATION

BOWLING GREEN, WARREN COUNTY, KY

TDD No. F4-8910-22

PROJECT MANAGER - MITCH COHEN

LOGBOOK REQUIREMENTS
REVISED - NOVEMBER 29, 1988

NOTE: ALL LANGUAGE SHOULD BE FACTUAL AND OBJECTIVE

1. Record on front cover of the Logbook: TDD No., Site Name, Site Location, Project Manager.
2. All entries are made using ink. Draw a single line through errors. Initial and date corrections.
3. Statement of Work Plan, Study Plan, and Safety Plan discussion and distribution to field team with team members' signatures.
4. Record weather conditions and general site information.
5. Sign and date each page. Project Manager is to review and sign off on each logbook daily.
6. Document all calibration and pre-operational checks of equipment. Provide serial numbers of equipment used onsite.
7. Provide reference to Sampling Field Sheets for detailed sampling information.
8. Describe sampling locations in detail and document all changes from project planning documents.
9. Provide a site sketch with sample locations and photo locations.
10. Maintain photo log by completing the stamped information at the end of the logbook.
11. If no site representative is on hand to accept the receipt for samples, an entry to that effect must be placed in the logbook.
12. Record I.D. numbers of COC and receipt for sample forms used. Also record numbers of destroyed documents.
13. Complete SMO information in the space provided.

We, the undersigned, have read the work plan and the health and safety plan and understand the scope of this study

Mitchell A. Cohen

Julie Keller
Julie L. Keller
12/1/89

2 12/11/89 cloudy, cold 9:00

We arrived in Bowling Green, and noticed that there was snow piled up in areas and along the roadsides. Apparently, there had been a recent snow storm.

We drove through town, looking for the water department. After several stops, we were finally given correct directions. It is about 32°F outside and the forecast is for sleet and snow tomorrow, 12/12/89. We will try to finish our work today to avoid any weather problems

12/11/89 cloudy, cold 9:00

Arrived at Bowling Green Municipal Building, We talked with Gary Asbury. He helped map out water lines for the Bowling Green water system. Gary told us that 13,000 meters are served. Gary also showed us where a private well is within one mile. Gary said there were ~~very little~~ not many private wells in the study area. He verified the location of the two surface water intakes on the Barren River.

9:30

We went to the Warren County Water District. We talked with Rosie Stahl. She showed us a water distribution map and said that 12,460 connections were served with water bought from Bowling Green. Julie mapped the lines on our topo. map.

3

12.05 12/11/99 cloudy, cold
Some snow on ground

We arrived at the facility and drove around the surrounding area. The fenced plant property is grassed and (MC) is surrounded by several businesses and trailer parks. These include Bushmans Motor, Specialty Concrete, and Universal Cooper to the southwest; Jackson Motorhome Park, Page Tool, Arco Welding, Big Mall apartments to the southeast; a fire station, and adjacent baseball field (MC) Desa Corp. to the northeast; and Hills Pet Products to the north west. The Hills facility is huge, with a tall air emission stack. Railroad tracks split the block in half, with Eaton Corp and the other facilities to the east and Hills to the west. We took photos of Eaton and then drove to the mobile home park. It was split into three with about 150 trailers. These would be closest residents, about 0.2 miles east. No private well was found within 1 mile of the facility.

[signature]

12/11/99 cloudy, cold 13.05

We were met by Roland McAbee

[HNU 895515 reads 0.25 PPM after 0.0 on Standby]

After taking a background reading, we waited about 5 minutes for Steve Fesko. Mr. McAbee introduced us to Steve Cavenaugh, the plant manager. Steve Fesko arrived with Sharon Sigler and Jerry Wooten. Sharon is a ~~lawyer~~ (MC) lawyer and Jerry is the production manager. Roland explained that the facility manufactures contactors, switch boxes, timers (MC) relays and motor starters for the electric motor industry. Eaton's products were ultimately the connection between power and a running motor. Fabrication included the plating of zinc, tin, nickel and silver onto steel, copper, some aluminum and alloys, molding of thermoplastic, the cutting of sheet steel, & painting of the product after final assembly.

[signature]

6 12/11/89 cloudy, cold 13:30

Operations began in 1965 and continue at present. 625 people work 2 main shifts, 5 days/week, and there is a small 3rd shift. The plant covers 470,000 Ft².

I explained why we were at the facility - based on the 1987 Post-closure assessment Report by Alliance Technologies. Sharon immediately said she would request a copy, although it is dated because Nus was a 3rd party to it, and had breached the confidentiality. I told her to request it from the EPA. Also, a letter from Wayne Garfinkel to Susan Diehl had expressed concerns about the closure. Sharon also wanted to request a copy of the letter.

Steve Fecko gave me a site layout map and two full-size prints of the water treatment plant phases I & II, and the plating area. I told him that I would like to begin the inspection outside.

12/11/89 Cloudy, cold 13.50

We went to the ~~northeast~~ north (and) portion of the plant where the 4 impoundments were located. The area was flat with a good grass cover. There was no evidence that ~~any~~ anything ever existed there. Julie took photo 1A, 1B, 1C, SUMA #1 looking east at the former location of the impoundments.

13.55

We walked to the fence just ~~northwest~~ northwest (and) of the impoundment locatio. This was the sinkhole that was NPDES permitted for effluent discharge. Julie took a photo looking east through the fence. Photo is #2. SUMA #2

Elaine O'Connor

Elaine O'Connor

14.00

We walked back to the north west corner of the plant where 2 storage buildings were located. On the concrete pad in front were several motors. Julie took photo No. 3 of the area of concern.

14.05

To the south of the motors were various metal racks, abandoned machinery and cabinets. Julie took photo No. 4 of AOC.

14.10

Inside the smaller, northernmost shed were drums. Jerry said they were empty, however we found several that were full, or partially full. The HNu 895515 read 50 ppm, so we left after getting a quick 4B. count. Julie took photo No. 5 of SWMU No. 5. The larger shed contained maintenance equipment, sorbent granules, and deicing salt.

14.15

We next walked over to a shipping dock south of the storage sheds. There were 5 20 yd³ roll on/roll off dumpsters. 4 of the 5 are used to dispose of either scrap steels or wooden pallets. The 6th dumpster is used to dispose of sludge filter cake from the water treatment plants.

Julie took photos:

No. 6 - SWMU No 6 - wooden pallets
No. 7 - SWMU No. 7 - common steel
No. 8 - SWMU No. 8 - mixed steel
No. 9 - SWMU No. 9 - stainless steel
No. 10 - SWMU No. 10 - F006 sludge

14.30

We went back inside the plant. Roland took us to the plating room in the north central portion of the plant. There were three plating areas: plating line No. 1, plating barrel line and the

JC 12/11/99 cloudy, cold

14:45

auto-zinc plating machine. We walked around each, inspecting the containment system and tanks. The plan sheet that Steve Fesko gave us shows the areas in detail.

Julie took photos No.:

No. 11 - Swmu No. 11 - plating line No. 1
12 - Swmu No. 12 - barrel plating line
13 - Swmu No. 13 - auto-zinc machine

14:50

Next, we walked just ~~south~~ west of the plating room to the paint room. Components are placed on a conveyor system, phosphate and acid washed and then painted. We looked at the paint booth. Julie took photo No. 14 of Swmu No. 14

14:55

We walked back ~~west~~ east and north of the plating and paint rooms to the waste water treatment Phase I room. The room consisted of a line of treatment tanks and a line stockpile. Waste water is pre-treated here prior to final clarification and discharge in the phase II. Julie took a photo ~~of~~ No. 15 of Swmu No. 15 The full size plan sheet shows in detail

15:00

To the west of the phase I treatment room is the phase II treatment room. We went in and looked around. There ~~are~~ are also a group of tanks here, but not as many as were in the Phase I room. Again, the full size plan sheet shows the room in detail. Julie took photo No. 16 of Swmu No. 16.

15:10

Just to the south of the H_2O treatment rooms is the drum storage area. The concrete diked, epoxy-coated area is used to store drums of waste prior

11

12/11/89 cloudy, cold 15:10

to offsite disposal, in less than 90 days. During the inspection, there were about 22 drums. Julie took a photo No. 17 of SWMU No. 17.

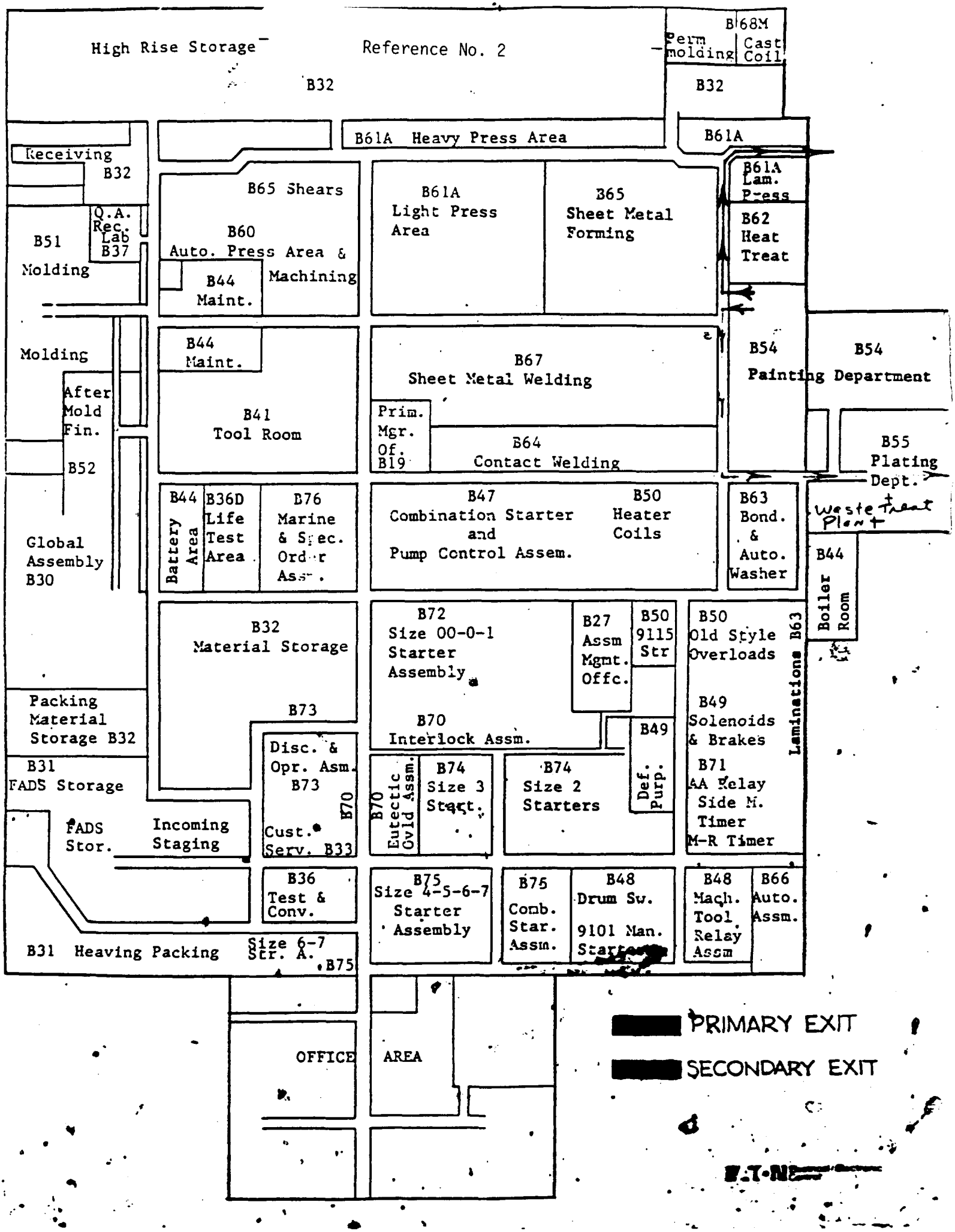
15:20

We went back to Rolands office and discussed each SWMU or AOC in detail. Jerry gave us most of the information, Steve gave us a copy of the ~~air~~ ~~p~~ (NPDES) municipal wastewater discharge permit. Roland also gave us a typed description of the operations at the facility.

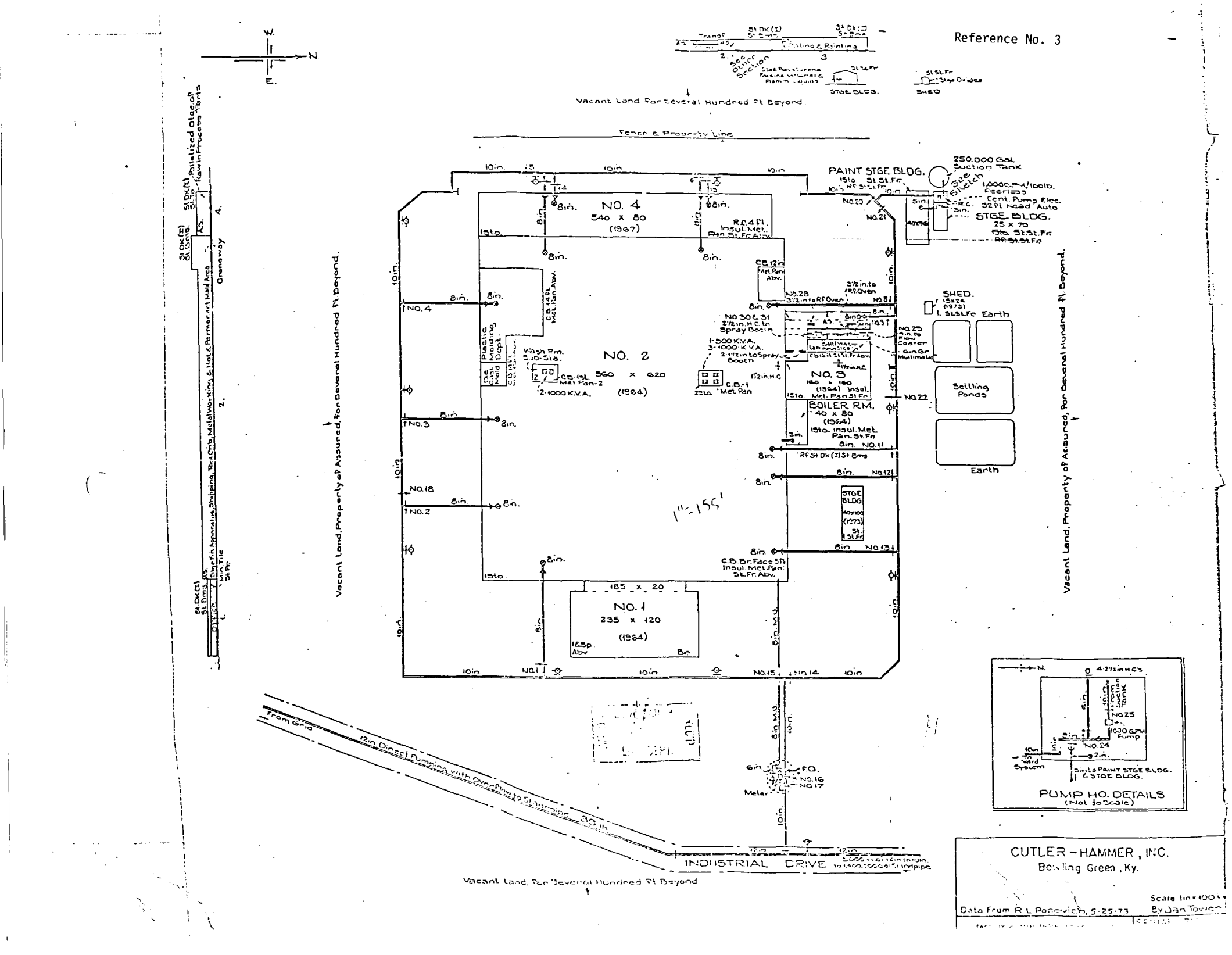
Steve and Roland informed me that the facility property was owned by the City of Bowling Green and leased to Eaton Corp.

I asked Steve how much sludge had been excavated and disposed of, and he told me about 7200 tons.

Detailed information about each SWMU or AOC can be obtained from the SWMU Evaluation forms, which are an extension of this logbook and can be found in the file.


High Rise Storage
Reference No. 2
B32
B68M
Perm molding
Cast Coil
B32
B61A Heavy Press Area
B61A
Receiving
B32
B65 Shears
B60
Auto. Press Area &
Machining
B44
Maint.
B61A
Light Press
Area
B65
Sheet Metal
Forming
B61A
Lam.
Press
B62
Heat
Treat
B51
Molding
Q.A.
Rec.
Lab
B37
Molding
After
Mold
Fin.
B52
B44
Maint.
B41
Tool Room
B67
Sheet Metal Welding
Prim.
Mgr.
Of.
B19
B64
Contact Welding
B54
B54
Painting Department
B55
Plating
Dept.
Waste Treat
Plant
Global
Assembly
B30
B44
Battery
Area
B36D
Life
Test
Area
B76
Marine
& Spec.
Order
Assm.
B47
Combination Starter
and
Pump Control Assem.
B50
Heater
Coils
B63
Bond.
&
Auto.
Washer
B44
Boiler
Room
B32
Material Storage
B72
Size 00-0-1
Starter
Assembly
B27
Assm
Mgmt.
Offc.
B50
9115
Str
B50
Old Style
Overloads
B49
Solenoids
& Brakes
B71
AA Relay
Side M.
Timer
M-R Timer
Laminations B63
Packing
Material
Storage B32
B73
B70
Interlock Assm.
B49
Def.
Purp.
B31
FADS Storage
Disc. &
Opr. Asm.
B73
B70
Cust.
Serv. B33
B70
Eutectic
Cvld Assm.
B74
Size 3
Starter
B74
Size 2
Starters
FADS
Stor.
Incoming
Staging
B36
Test &
Conv.
B75
Size 4-5-6-7
Starter
Assembly
B75
Comb.
Star.
Assm.
B48
Drum Sw.
9101 Man.
Starters
B48
Mach.
Tool
Relay
Assm
B66
Auto.
Assm.
B31 Heaving Packing
Size 6-7
Str. A.
B75
OFFICE
AREA
PRIMARY EXIT
SECONDARY EXIT

Reference No. 3



CUTLER – HAMMER, INC.
Bowling Green, Ky.

Scale 1 in = 100 ft
Date From R. L. Popovich, 5-25-73
By Jan Tovich

Reference No. 4

MEMORANDUM

TO: Caroline P. Haight, Manager
Permit Review Branch

FROM: Barry Burrus, Chief
Uncontrolled Sites Section

DATE: March 21, 1984

SUBJECT: Uncontrolled Site Close-out for the Eaton Corporation, Bowling Green Plant - Warren County

This facility produces relay-type electrical motor switchgear for industrial applications. Wastes generated at this facility include: electroplating sludge, water-based paint wastes, paint wastes used lubricating oil, and used chlorinated solvents.

The electroplating sludge is first treated with lime, acid, and a polyelectrolyte. It is then filter pressed to produce a "cake" which is disposed in a hazardous waste disposal site, operated by NEWCO Chemical Waste Systems of Ohio, Inc.

Water-based paint wastes, and paint wastes (containing no metals) are disposed on a quarterly basis.

Used lubricating oil and used chlorinated solvents are reclaimed on a quarterly basis.

The electroplating sludges are contained in lagoons prior to treatment. This practice is planned to be eliminated by an in-line filter cake process. Closure of the lagoons will begin in July, 1984.

After research of the KYNREPC files and the completion of a preliminary assessment by Robert Burns, I have concluded that this site requires no further action and should be removed from the uncontrolled sites list.

BB:RB:da

cc: Don Curry
Jack Watkins
Bob Prewitt
Robert Burns
File

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

EPA

I. IDENTIFICATION
01 STATE: KY | 02 SITE NUMBER: KYD098950306

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER				
Eaton Corp, Bowling Green Plt.	P.O. Box 1158, 2901 Fitzgerald Ind Drive				
03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Bowling Green	KY	42101	Warren	114	
09 COORDINATES LATITUDE	LONGITUDE				
36°57 03.0"	086°29 00.0"				

10 DIRECTIONS TO SITE (Starting from nearest public road)
From Bowling Green follow Creson Drive to Emmett Rd. Take a left on to Emmett Road. Approximately 1/4 mile down Emmett Rd. take a right on to Industrial Drive, facility is about 1/2 mile down Industrial Drive on the right.

III. RESPONSIBLE PARTIES

01 OWNER (If known)	02 STREET (Business, mailing, residential)		
Eaton Corporation	100 Erieview Plaza 1111 Superior Ave		
03 CITY	04 STATE	05 ZIP CODE	06 TELEPHONE NUMBER
Cleveland	Oh	44114	(216) 523-2507
07 OPERATOR (If known and different from owner)	08 STREET (Business, mailing, residential)		
Mel Smith	P.O. Box 1158, 2901 Fitzgerald Ind Drive		
09 CITY	10 STATE	11 ZIP CODE	12 TELEPHONE NUMBER
Bowling Green	KY	42101	(502) 782-1555

13 TYPE OF OWNERSHIP (Check one)
☑ A. PRIVATE ☐ B. FEDERAL: _____ (Agency name) ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL
☐ F. OTHER: _____ (Specify) ☐ G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)
☐ A. RCRA 3001 DATE RECEIVED: ___/___/___ (MONTH DAY YEAR) ☐ B. UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED: ___/___/___ (MONTH DAY YEAR) ☑ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION
☑ YES ☐ NO DATE 2 15 84 (MONTH DAY YEAR)
BY (Check all that apply)
☐ A. EPA ☐ B. EPA CONTRACTOR ☑ C. STATE ☐ D. OTHER CONTRACTOR
☐ E. LOCAL HEALTH OFFICIAL ☐ F. OTHER: _____ (Specify)
CONTRACTOR NAME(S): _____

02 SITE STATUS (Check one)
☑ A. ACTIVE ☐ B. INACTIVE ☐ C. UNKNOWN

03 YEARS OF OPERATION
_____ (BEGINNING YEAR) _____ (ENDING YEAR) ☑ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED
Electroplating wastes, water-based paint wastes, paint wastes, used lubricating oil, and used chlorinated solvents.

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION
This facility has four lagoons that contain electroplating wastewater treatment sludge. These lagoons are planned for closure in July, 1984.

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents)
☐ A. HIGH (Inspection required promptly) ☐ B. MEDIUM (Inspection required) ☐ C. LOW (Inspect on time available basis) ☑ D. NONE (No further action needed, complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)		03 TELEPHONE NUMBER
Jack Watkins	KYDREPC, Columbia Field Office		(502) 384-4234
04 PERSON RESPONSIBLE FOR ASSESSMENT	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NUMBER	08 DATE
Robert Burns	Env. Prot.	Waste Mgt.	(502) 564-6716	3 19 84 (MONTH DAY YEAR)

EPA FORM 2070-12 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
KY	D098950306

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- ☐ A. SOLID
- ☐ B. POWDER, FINES
- ☐ C. SLUDGE
- ☐ D. OTHER — NA (Specify)
- ☐ E. SLURRY
- ☐ F. LIQUID
- ☐ G. GAS

02 WASTE QUANTITY AT SITE
(Measures of waste quantities must be independent)

TONS: NA

CUBIC YARDS:

NO. OF DRUMS:

03 WASTE CHARACTERISTICS (Check all that apply)

- ☐ A. TOXIC
- ☐ B. CORROSIVE
- ☐ C. RADIOACTIVE
- ☐ D. PERSISTENT
- ☐ E. SOLUBLE
- ☐ F. INFECTIOUS
- ☐ G. FLAMMABLE
- ☐ H. IGNITABLE
- ☐ I. HIGHLY VOLATILE
- ☐ J. EXPLOSIVE
- ☐ K. REACTIVE
- ☐ L. INCOMPATIBLE
- ☑ M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS			
PSD	PESTICIDES	NA		
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
	NA				

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

State files

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION
01 STATE: KY | 02 SITE NUMBER: D098950306

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☐ A. GROUNDWATER CONTAMINATION
03 POPULATION POTENTIALLY AFFECTED: NA
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ B. SURFACE WATER CONTAMINATION
03 POPULATION POTENTIALLY AFFECTED: NA
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ C. CONTAMINATION OF AIR
03 POPULATION POTENTIALLY AFFECTED: NA
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS
03 POPULATION POTENTIALLY AFFECTED: NA
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ E. DIRECT CONTACT
03 POPULATION POTENTIALLY AFFECTED: NA
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ F. CONTAMINATION OF SOIL
03 AREA POTENTIALLY AFFECTED: NA (Acres)
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ G. DRINKING WATER CONTAMINATION
03 POPULATION POTENTIALLY AFFECTED: NA
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ H. WORKER EXPOSURE/INJURY
03 WORKERS POTENTIALLY AFFECTED: NA
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ I. POPULATION EXPOSURE/INJURY
03 POPULATION POTENTIALLY AFFECTED: NA
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION
01 STATE: KY | 02 SITE NUMBER: KD098950306

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☐ J. DAMAGE TO FLORA — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION: NA

01 ☐ K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION (Include name(s) of species): NA

01 ☐ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION: NA

01 ☐ M. UNSTABLE CONTAINMENT OF WASTES (Spills/runoff/standing liquids/leaking drums) — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: NA
04 NARRATIVE DESCRIPTION

01 ☐ N. DAMAGE TO OFFSITE PROPERTY — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION: NA

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION: NA

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION: NA

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS
NA

III. TOTAL POPULATION POTENTIALLY AFFECTED: _____

IV. COMMENTS

V. SOURCES OF INFORMATION (Cite specific references, e. g., state files, sample analysis, reports)

Eaton Corporation
Manufacturing Services Center
32500 Chardon Road
Willoughby Hills, Ohio 44094
Telephone (216) 523-5000

Reference No. 5

January 3, 1990

Mitchell Cohen
NUS Corporation
1927 Lakeside Parkway
Suite 614
Tucker, Georgia 30084

Re: Information Request Regarding Eaton's Bowling Green Facility

Dear Mr. Cohen:

EATON

On January 2, 1990 I received a memo in which you requested additional information regarding Eaton's Bowling Green Facility. Responses to your inquires follow:

Question 1: Does Eaton Corp. own the property or lease from another owner?

Response 1: Eaton Corporation leases the property from the City of Bowling Green.

Question 2: Who picks up drummed wastes and where are the drums disposed of? (This pertains to hazardous wastes stored in the plant - SWMU 17)

Response 2: Hazardous waste is transported by Heritage Transport, Incorporated to Heritage Environmental Services Facility in Indianapolis, Indiana.

Question 3: When were scrap dumpsters placed in service?

Response 3: Eaton Corporation has produced scrap material since operations began in 1964. The scrap has been deposited in 20 yard dumpsters or some other type of solid waste management units the entire 25 years of operation. Dumpsters are emptied on a regular basis by a local waste hauler.

Question 4: Please provide NPDES permit number and when it expired?

Response 4: Eaton currently operates its pretreatment facility under Wastewater Discharge Permit No. P010. The permit expires on April 4, 1992.

Question 5: What was the depth of the closed impoundments?

Response 5: The approximate depths of the closed impoundments ranged from 5 to 7 feet.

Question 6: Please provide air permit information for the paint booth?

Response 6: The paint booth's current operating permit is 0-79-428.

If you need additional information, please call me at (216) 523-6745.

EATON

Sincerely,

Steve Fesko

CC: Sharon Sigler
Jerry Wooten

Reference No. 6 - Dec 11, 1990

Mitch Cohen:

We manufacture devices for the control of electrical motors. These devices are commonly used on industrial and commercial machinery where the mechanical machine function needs to be controlled. In addition, some of these devices are used to protect the motor from heat damage caused by over currents.

Typical customer base consists of original equipment manufacturers, industrial users, and the resale market through authorized distributor wholesalers.

Roland McAbee

prc
Planning Research Corporation

Reference No. 7

300 East Wacker Drive
Suite 500
Chicago, IL 60601
312-938-0300

INSPECTION TO ASSESS COMPLIANCE WITH CLOSURE/POST CLOSURE REQUIREMENTS AT EATON CORPORATION BOWLING GREEN, KENTUCKY KYD098950306

DRAFT FINAL REPORT

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Waste Programs Enforcement
Washington, D.C. 20460

Work Assignment No.	:	536
EPA Region	:	4
Site No.	:	None (R)
Date Prepared	:	April 23, 1987
Contract No.	:	68-01-7037
PRC No.	:	15-5360-00
Prepared By	:	Alliance Technologies Corporation
Telephone No.	:	(617) 275-5444
EPA Primary Contact	:	Doyle Brittain
Telephone No.	:	(404) 347-7603

ENFORCEMENT
CONFIDENTIAL

PRIVILEGED WORK PRODUCT PREPARED
IN ANTICIPATION OF LITIGATION

CONTENTS

		Page
1.	Introduction	1
2.	Facility Description	3
3.	Closure Plan and Chronology	5
4.	Inspection Findings	8
5.	Conclusions	11
6.	References	13

APPENDICES

A.	Completed Inspection Checklist and Other Inspection Notes	A-1
B.	Photographs	B-1
C.	Documents From File Review	C-1
D.	Other Documents	D-1

LIST OF FIGURES

Page

1. Relative Locations of Former Impoundments..... 6

LIST OF TABLES

Page

1. Summary of Final Soil Analyses..... 9

SECTION 1
INTRODUCTION

Regulations promulgated under the Resource Conservation and Recovery Act (RCRA) require that operators of hazardous waste management facilities have a written closure plan approved by the U.S. Environmental Protection Agency or appropriate State regulatory agency. The regulations also detail specific requirements for the closure and post closure care of such facilities. Under a work assignment for the U. S. Environmental Protection Agency Region IV Waste Compliance Section (EPA Contract No. 68-01-7037, Work Assignment 536), GCA Technology Division, Inc. inspected facilities in EPA Region IV where some or all of the waste management operations have been closed. The purpose of these inspections was to determine whether the facility operators followed their approved closure plans and complied with the requirements of RCRA in closing waste management units.

The Eaton Corporation plant in Bowling Green, Kentucky (KYD098950306) closed four RCRA surface impoundments in 1984. On July 31, 1985, Messrs. William Battye, P.E., and David Misenheimer, of GCA Technology Division, inspected the Eaton plant and the closed RCRA facilities. The GCA inspectors were accompanied by Mr. George Gilbert, P.E., of the Kentucky Department of Environmental Protection Frankfurt Office, and Mr. Jack Watkins of the Bowling Green District Office. Mr. Mel Smith, Eaton Corporation Plant Engineer, provided information on the closures and on current operations at the Eaton Bowling Green plant. Mr. David Rogers, Eaton's Human Resources Supervisor, also was present at the inspection. Mr. Rogers is expected to take responsibility for RCRA compliance at the Bowling Green plant after Mr. Smith's retirement.

In addition to inspecting the Eaton plant, GCA personnel reviewed RCRA files at the Kentucky Department of Environmental Protection Office in Frankfort. Mr. Battye also contacted Mr. Stuart Edwards, P.E., of Dames and Moore, Inc., to discuss closure activities. Dames and Moore was retained by Eaton to provide technical support during the closure, and Mr. Edwards provided the final P.E. certification of closure.

The remainder of this report is divided into five sections: Section 2 - Facility Description; Section 3 - Closure Plan and Chronology; Section 4 - Inspection Findings; Section 5 - Conclusions; and Section 6 - References. Also included are four Appendices: Appendix A - Inspection Notes and Checklist; Appendix B - Photographs; Appendix C - Documents from File Review; and Appendix D - Other Documents. References listed in Section 6 may also be reproduced in Appendices C and D.

SECTION 2
FACILITY DESCRIPTION

GENERAL

The Eaton Standard Power Control Division plant in Bowling Green, Kentucky, produces electrical devices, including switch boxes, contactors, timers, and relays. The plant has been in operation since 1965. The plant has several plating, metal finishing, and solvent cleaning operations that generate wastewater, solid wastes, and waste solvents.

WASTEWATER TREATMENT AND WASTE HANDLING

Wastewater treatment operations used at the Eaton plant are classified by plant personnel into Phase I and Phase II treatment processes. Phase I processes are the initial treatment steps for plating wastewaters and other process wastewater. These include two separate continuous treatment systems for chromium wastewaters and cyanide wastewaters. In addition, batch treatment operations are used for other process wastewaters.

The Phase II operations include a treatment operation for clean wash water, and the final treatment processes for sludges generated in the Phase I systems. The Phase II operations were installed in 1981 and replaced the now closed surface impoundments.

Currently, in the Phase II sludge treatment system, sludge is pumped to one of three tanks. Sludge from the tanks is pumped through a filter press. Filtrate from the press is discharged to the Bowling Green POTW. The filter cake is collected in a hopper, and then bagged when the hopper is full. Bags are shipped out by truck within the 90 day RCRA limit. Approximately one truckload (about 20 tons) is shipped every 90 days. The filter cake is shipped to the Chem Waste Management landfill in Emelle, Alabama. The plant is considering a sludge dryer that would reduce the volume of sludge from the filter press by a factor of about four.

Clean wash water is pumped to a liming tank, followed by a flocculation tank and a clarifier. Sludge from the clarifier is pumped to the filter press, and water from the clarifier is discharged to the Bowling Green POTW.

In addition to the filter cake from plating wastewater, the Eaton plant generates spent chlorinated and non-chlorinated solvents from solvent cleaning operations. The solvents are drummed and sent to the LWD incinerator in Calvert City, Kentucky. Waste is also generated in periodic cleanings of the wastewater sumps. Precipitate from the sumps may be sent to either Chem Waste Management or LWD.

Prior to installation of the Phase II treatment systems, the four closed surface impoundments were used to treat the plant wastewater and sludge. Plant wastewater was piped to two settling impoundments. These discharged through a discharge pond to a sinkhole, under an NPDES permit. Sludge from Phase I treatment systems was piped to two sludge drying beds. Water from the beds overflowed into the settling impoundments.

SECTION 3
CLOSURE PLAN AND CHRONOLOGY

Use of the impoundments at the Eaton plant began during the construction of the plant in 1966. Figure 1 shows the sizes and relative locations of the impoundments. Each of the two sludge beds was 35 feet by 50 feet, and each of the two settling ponds was 40 feet by 100 feet. The impoundments were used to treat plating wastewaters and sludges (F006). The impoundments were deactivated in 1981 following the installation of the Phase II wastewater treatment system. Eaton and the State of Kentucky debated the action to be taken on the deactivated impoundments from 1981 to 1983. On March 21, 1983, Eaton proposed to remove and treat the standing water in the impoundments and to cover the impoundments while studying various options for treating the remaining sludge.[1] This plan was approved by the State of Kentucky on March 31, 1983.[2]

An inflating building was installed to cover the sludge beds and settling impoundments on July 29, 1983.[3] Removal of standing water from the impoundments was commenced in August 1983. The water was treated in Eaton's wastewater treatment system and discharged to the Bowling Green POTW in accordance with a discharge permit. Sludge was removed from the water in the filter press, and the filter cake was sent to Chem Waste Management.[3] A total of about 100 thousand gallons were removed and treated between August 1983 and July 1984.[3] The inflated building was removed on June 25, 1984,[3] and on June 11, 1984, Dames and Moore, Inc., consultants for Eaton, submitted a closure plan for the deactivated impoundments.[4] After receiving comments from the State, Dames and Moore submitted revisions to the closure plan on June 14, 1984.[5] The revised closure plan was approved by the State of Kentucky on June 20, 1984.[6] An extension of the final closure date until October 19, 1984 was later approved.[7]

The final closure plan called for the stabilization of the sludge with lime kiln flue dust and the removal of the sludge, the liner and any

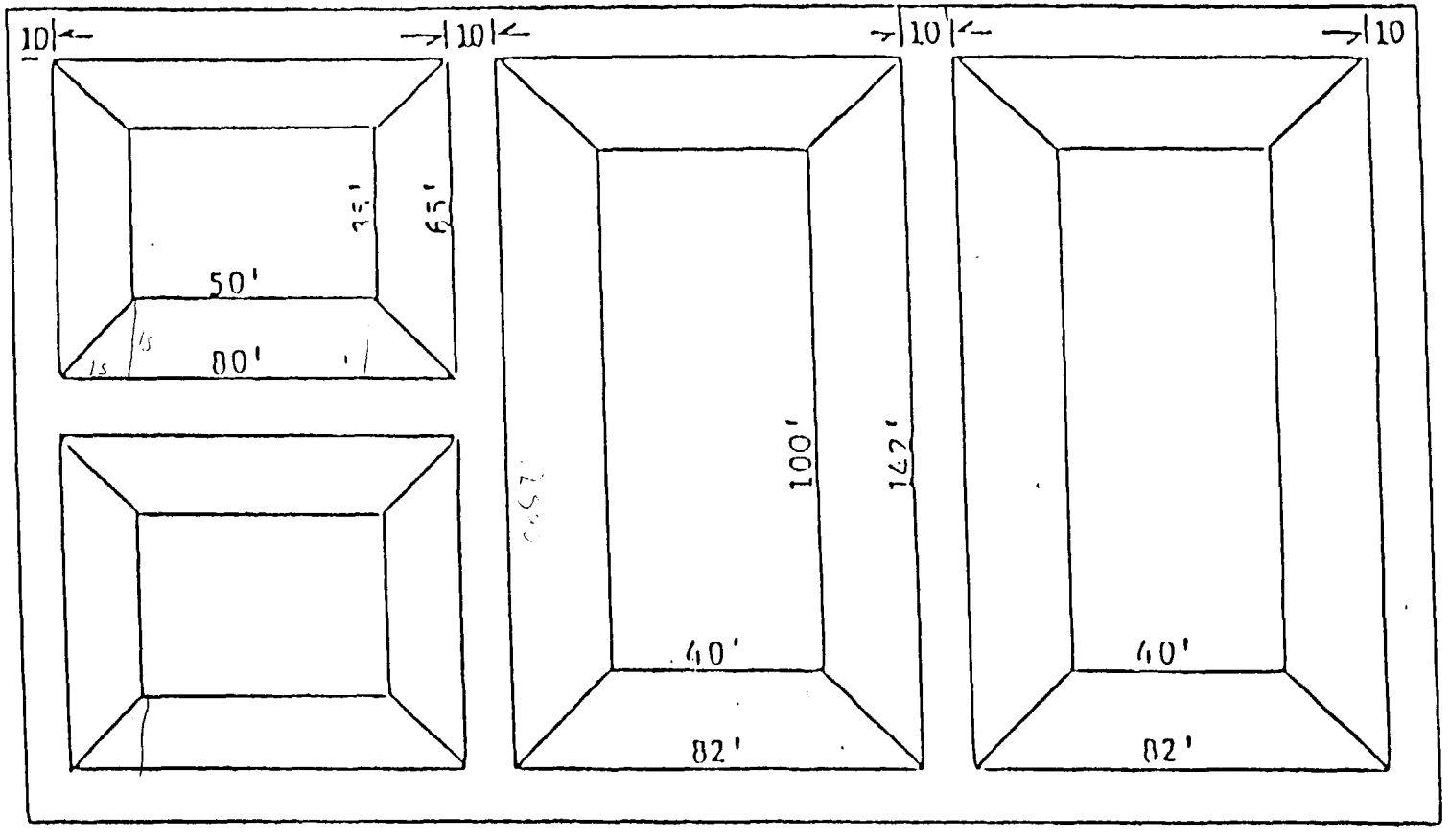


Figure 1. Relative Location of Former Impoundments.
(Source: Dames and Moore Closure Plan)

contaminated soil. The sludge and contaminated material were to be shipped to CECOS Environmental. Soil contamination was to be determined by comparison of metal concentrations with those in background soil.[5]

The sludge was stabilized and removed, with the liner, in July 1984. Soil sampling was conducted on August 27 and 28, and several contaminated areas were identified. The identified areas were excavated, and sampling was repeated on September 11. Additional contaminated soil was removed, and final sampling was conducted on September 27, 1984. All soil samples were analyzed for cadmium, hexavalent chromium, free cyanide and nickel by a laboratory subcontracted to CECOS.

Eaton and Dames and Moore determined that the final sampling showed no further contamination. Because of analytical uncertainty, a concentration of more than twice the measured background was considered to be indicative of contamination.[3] This threshold was approved verbally by the State of Kentucky in a meeting with Dames and Moore prior to the backfilling of the excavated area.[8] On October 15, 1984, Dames and Moore submitted a P.E. certification of closure that included the final analytical results.[3] Owner certification of closure was submitted by Eaton on October 18.[9] The closure certification was approved by the State on December 11.[10]

Groundwater monitoring was conducted by Dames and Moore for 3 years between 1981 and 1984, and no contamination was detected.[11] The first semi-annual groundwater monitoring report is reproduced in Appendix C.[12] Eaton was relieved of its groundwater monitoring requirement in 1985.[11]

SECTION 4
INSPECTION FINDINGS

On July 31, 1986, Messrs. William Battye, P.E., and David Misenheimer, of GCA, inspected the Eaton facility. Completed inspection forms and other notes made during the inspection are reproduced in Appendix A. Photographs taken during the inspection are reproduced in Appendix B. The four impoundments and the discharge lagoon were found to be backfilled, and there was a good grass cover. Manifests were reviewed which indicated that sludge and contaminated soil were hauled to CECOS in Williamsburg, Ohio between July and September 1984. A summary of the manifests is given in the final closure certification.[3]

The final soil analyses prior to backfilling are summarized in Table 1.[3] As the table shows, contaminant levels in some of the individual samples exceeded the 2-times-background threshhold. In some instances, there were duplicate analyses showing contaminant levels below the threshhold. For location S-1 in the South Sludge Basin, the July 30 analysis showed levels below the threshhold, while the August 11 analysis showed free cyanide levels exceeding the threshhold to a depth of 13 inches. However, no material had been removed between July 30 and August 11. For location N-1, duplicate analyses were made, with one analysis showing a nickel concentration above the threshhold and the other showing a nickel concentration below the threshhold.

Mr. Stuart Edwards, P.E., of Dames and Moore, was contacted by telephone regarding the exceedences of the threshholds.[13] Mr. Edwards noted that in the case of location S-2, although the sample to a depth of 6 inches exceeded the threshhold, a weighted average of the first 8 inches would be at the threshhold. He also stated that, because there is no E.P. toxicity standard for nickel, the nickel threshhold was used as a guideline rather than a hard and fast rule. It should be noted that although it is not regulated under E.P. toxicity rules, the presence of nickel was cited as one of the bases for listing plating sludge (F006) as a hazardous waste.[14] Chromium, cyanide, and cadmium were also cited in the listing document.

TABLE 1. SUMMARY OF FINAL SOIL ANALYSES

Sample number & date	Depth (inches)	Contaminant concentration (ppm) Cadmium	Hexavalent Chromium	Free Cyanide	Nickel
BACKGROUND		3.25	< 0.16	0.23	29.8
NORTH SLUDGE BASIN					
N-1	0-6	4.23	< 0.16	< 0.23	57.9
9/27	0-6	1.97	< 0.16	< 0.23	79.6
N-2	0-6	2.07	< 0.16	< 0.23	53.6
9/27					
N-3	0-6	1.61	< 0.16	< 0.23	45.8
9/27					
N-4	0-6	1.52	< 0.16	< 0.23	42.5
9/27	6-8	1.62	< 0.16	< 0.23	32.6
	11-13	1.72	< 0.16	< 0.23	29.6
	16-18	1.73	< 0.16	< 0.23	31.2
	22-24	2.12	< 0.16	< 0.23	25.4
EAST SETTLING POND					
E-1	0-6	1.36	< 0.11	0.13	22.5
7/26	6-8	1.88	< 0.14	< 0.17	26.3
E-2	0-6	0.74	< 0.13	< 0.15	28.4
7/26	6-8	< 0.37	< 0.12	< 0.21	35.1
	11-13	< 0.36	< 0.09	< 0.16	28.2
	16-18	0.43	< 0.08	< 0.08	18.1
E-3	0-6	< 0.43	< 0.12	< 0.11	23.4
7/26	6-8	0.51	< 0.15	< 0.15	27.3
	11-13	0.93	< 0.09	< 0.17	28.8
E-4	0-6	< 0.40	< 0.13	< 0.16	27.6
7/26	6-8	0.88	< 0.09	< 0.14	22.5
	11-13	< 0.34	< 0.08	< 0.07	18.2
	16-18	0.99	< 0.09	< 0.07	21.8
	22-24	1.41	< 0.09	< 0.06	35.0
E-5	0-6	0.48	< 0.10	< 0.13	29.9
7/26	6-8	0.48	< 0.12	< 0.11	49.7
	11-13	0.80	< 0.12	< 0.18	19.9
	16-18	< 0.31	< 0.10	< 0.06	19.9
E-6	0-6	0.52	< 0.15	< 0.16	25.4
7/26	6-8	0.42	< 0.13	< 0.12	39.9
	11-13	0.37	< 0.09	< 0.08	19.9
E-7	0-6	0.34	< 0.11	< 0.13	25.7
7/26	6-8	0.84	< 0.07	< 0.07	25.9
	11-13	1.34	< 0.16	< 0.22	18.1
E-8	0-6	0.41	< 0.12	< 0.13	26.8
7/26	6-8	0.60	< 0.12	< 0.19	26.5
	11-13	1.38	< 0.06	< 0.08	31.4

Sample number & date	Depth (inches)	Contaminant concentration (ppm) Cadmium	Hexavalent Chromium	Free Cyanide	Nickel
SOUTH SLUDGE BASIN					
S-1	0-6	0.65	< 0.16	2.60	38.7
9/11	6-8	0.24	< 0.16	1.88	24.0
	11-13	0.23	< 0.16	2.72	30.6
	16-18	0.27	< 0.16	< 0.23	35.9
S-1	0-6	5.07	< 0.14	0.03	34.2
7/30	6-8	0.79	0.32	0.04	30.6
	11-13	0.53	< 0.12	< 0.16	36.7
	16-18	1.47	< 0.11	< 0.09	43.3
	22-24	1.33	< 0.09	< 0.08	41.8
S-2	0-6	0.64	< 0.12	0.57	51.8
7/30	6-8	1.02	< 0.13	0.13	46.9
	11-13	0.91	< 0.14	< 0.22	39.7
	16-18	2.18	< 0.10	< 0.10	70.7
S-3	0-6	2.67	< 0.15	< 0.23	38.2
7/30	6-8	4.45	< 0.14	< 0.23	53.4
	11-13	0.92	< 0.13	0.38	61.5
	16-18	1.81	< 0.14	0.13	56.9
S-4	0-6	0.50	< 0.16	< 0.23	68.5
9/27					
WEST SETTLING POND					
W-1	0-6	1.84	< 0.11	< 0.10	51.5
8/29	0-6	1.64			48.3
W-2	0-6	0.36	< 0.08	< 0.21	19.3
7/26	6-8	0.45	< 0.13	< 0.15	32.3
	11-13	0.40	< 0.11	< 0.07	29.0
W-3	0-6	0.31	< 0.10	< 0.08	48.7
8/29					
W-4	0-6	0.46	< 0.09	0.18	32.9
7/26	6-8	0.52	< 0.11	< 0.17	33.2
	11-13	0.37	< 0.12	< 0.14	17.6
	16-18	2.41	< 0.12	< 0.08	38.0
W-5	0-6	0.35	< 0.11	< 0.14	27.3
7/26	6-8	0.48	< 0.15	< 0.18	34.8
	11-13	0.26	< 0.08	< 0.16	38.3
W-6	0-6	< 0.34	< 0.13	< 0.16	29.2
7/26	6-8	0.41	< 0.13	< 0.18	26.8
	11-13	0.37	< 0.14	< 0.14	36.7
	16-18	1.47	< 0.11	< 0.18	41.0
	22-24	0.82	< 0.12	< 0.08	27.4
W-7	0-6	0.26	< 0.10	< 0.09	46.9
8/29					
W-8	0-6	< 0.41	< 0.12	< 0.15	26.6
7/26	6-8	< 0.43	< 0.14	< 0.19	31.1
	11-13	< 0.40	< 0.16	< 0.17	32.8
	16-18	< 0.30	< 0.08	< 0.19	17.4

If conflicting duplicate analyses are considered, and the average concentration over 8 inches is used instead of the 6 inch result for S-2, all of the exceedences of the threshholds are accounted for except for the nickel concentrations in S-3 and S-4. Also, if the S-3 nickel concentration for a depth of 16 to 18 inches (which exceeds the threshhold) is averaged with the concentration for 11 to 13 inches, the threshhold is not exceeded. For S-4, only the top 6 inches were sampled. The nickel concentration in the first 6 inches exceeded the threshhold by 15 percent. The use of the nickel threshhold as a guideline instead of a hard rule explains why no more soil was removed at S-4.

As noted in the previous section, the final closure certification was approved by the State of Kentucky. The certification included the analytical results summarized in Table 1. George Gilbert, of the Kentucky Department of Environmental Protection, stated that Eaton had removed soil down to the level of bedrock when the final analyses were done and that the final samples were taken from pockets in the bedrock.[8] The State's protocols for reviewing closure plans and certifications have evolved substantially since the Eaton closure. The State currently requires a Student's t-test, similar to that required for groundwater modeling studies (40 CFR 265 Appendix IV), for all land disposal closures involving listed waste.[8] GCA could not perform a t-test with the Eaton data because only one set of background measurements was made.

It should be noted that threshholds were never exceeded for more than one contaminant in the same sample. Also, the final concentrations of cadmium and nickel were in all cases at least a factor of ten below the concentrations in the original sludge, 210 ppm for cadmium and 860 ppm for nickel.[4] (The sludge samples were not analyzed for cyanide and were analyzed for total chromium instead of hexavalent chromium.) Finally, no contamination was detected in groundwater monitoring over a 3-year period.[11]

SECTION 5
CONCLUSIONS

On July 31, 1986, Messrs. William Battye, P.E., and David Misenheimer, of GCA, conducted a closure/post closure inspection of the Eaton plant in Bowling Green, Kentucky. The following items were noted during the inspection and file review:

- The four closed impoundments and the former discharge lagoon were backfilled, and there was a good grass cover.
- Manifests showed the sludge and contaminated soil had been removed to a permitted hazardous waste landfill. Plant personnel indicated standing water in the impoundments was treated in the on-site wastewater treatment plant.
- Groundwater monitoring was conducted for 3 years between 1981 and 1984, and no contamination was detected.[11] Eaton was relieved of groundwater monitoring requirements in 1985.[11]
- In a meeting conducted during the closure, the State of Kentucky, Eaton, and Eaton's consultant, Dames and Moore, Inc., determined that a threshhold of 2-times the background level would be used in determining whether additional soil should be removed.[8] Soil sampling was performed on three occasions, and additional material was removed after the first two sampling studies.[3] However, GCA's review of the final analytical results showed that the 2-times-background threshhold was exceeded for some of the final samples.[3] The final closure certification, which included these analytical results, was approved by the State of Kentucky.[10]

Based on discussions with plant personnel, review of files, and an inspection of the Eaton plant, it appeared that, except for the exceedences of the 2-times-background threshhold, the RCRA impoundments were closed in accordance with the approved plan. The 2-times-background level was not given in the plan but was set at a subsequent meeting.[8] The plan merely stated that the presence of contamination would be determined "by comparison with background soil quality."[5] As noted in the previous section, conflicting duplicate analyses cast doubts on some of the measured threshhold exceedences. Other exceedences were discounted by Dames and Moore based on averaging with results from other depths in the same core sample. Because the

final closure certifications were approved by the State, and because no contamination was detected in groundwater monitoring, it would appear that Eaton's backfilling the impoundment, despite the threshhold exceedences, does not constitute a violation of 40 CFR 265.

SECTION 6

REFERENCES

1. Letter from Mel Smith, Senior Project Engineer, Eaton Corporation, to Caroline Patrick Haight, Kentucky Department of Environmental Protection. Maintenance of Impoundments Prior to Closure. March 21, 1983. (Reproduced in Appendix C, Item 1.)

2. Letter from J. Alex Barber, Kentucky Department of Environmental Protection, to Mel Smith, Senior Project Engineer, Eaton Corporation. Approval of maintenance plan. March 31, 1983. (Reproduced in Appendix C, Item 2.)

3. Dames and Moore. Final Closure Certification: Wastewater Settling Ponds and Sludge Beds. Job No. 12461-007-17. October 15, 1984. (Reproduced in Appendix C, Item 8.)

4. Dames and Moore. Closure Plan: Wastewater Settling Ponds and Sludge Beds. Job No. 12461-007-17. June 11, 1984. (Reproduced in Appendix C, Item 3.)

5. Letter from Stuart Edwards, P.E., Dames and Moore, Inc., to George Gilbert, Kentucky Department of Environmental Protection. Revisions to closure plan. June 14, 1984. (Reproduced in Appendix C, Item 4.)

6. Letter from J. Alex Barber, Kentucky Department of Environmental Protection, to Mel Smith, Eaton Corporation. Approval of Closure Plan. June 20, 1984. (Reproduced in Appendix C, Item 5.)

7. Letter J. Alex Barber, Kentucky Department of Environmental Protection, to Mel Smith, Eaton Corporation. Approval of Closure Extension. October 9, 1984. (Reproduced in Appendix C, Item 6.)

8. Personal Communication with George Gilbert, Kentucky Department of Environmental Protection. Approval of threshold for contamination. August 1, 1986. (Documented in Appendix D, Item 1.)

9. Letter from H. Kitscha, Eaton, to George Gilbert, Kentucky Department of Environmental Protection. Owner Certification. October 18, 1984. (Reproduced in Appendix C, Item 7.)

10. Letter from J. Alex Barber, Kentucky Department of Environmental Protection, to H. Kitscha, Eaton Corporation. Approval of Closure Certification. December 11, 1984. (Reproduced in Appendix C, Item 9.)

11. Memo. Robert Kjilland, Geologist, Kentucky Department of Environmental Protection, to Mohammad Alauddin, Kentucky Department of Environmental Protection. Termination of groundwater monitoring requirements for Eaton. January 7, 1985. (Reproduced in Appendix C, Item 10.)

References (continued)

12. Dames and Moore. RCRA Groundwater Monitoring Semi-Annual Report - Eaton Corporation. Job No. 12461-006-21. April 3, 1984. (Reproduced in Appendix C, Item 11.)

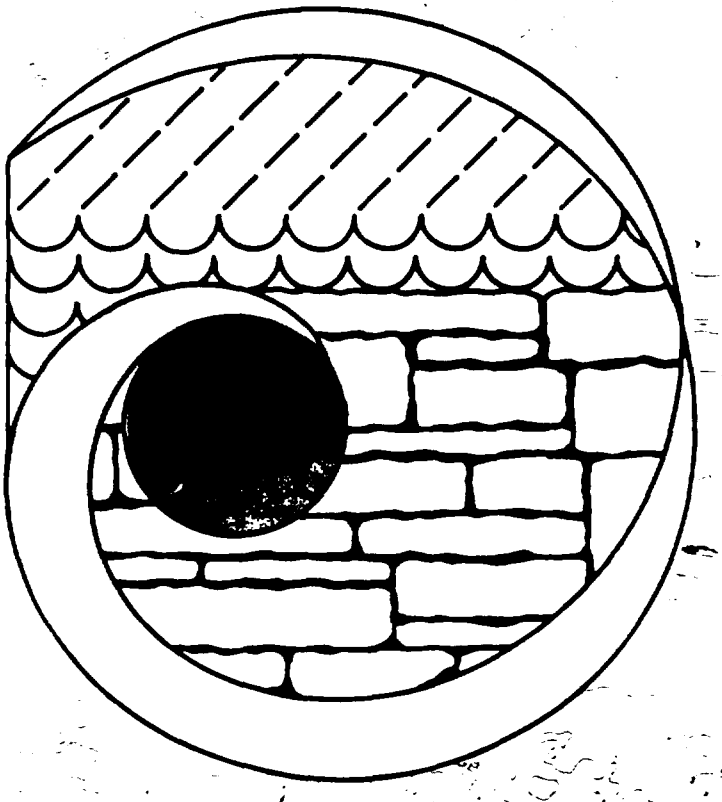
13. Telecon. William Battye, GCA, with Stuart Edwards, P.E., Dames and Moore, Inc. Exceedences of the 2-times-background threshhold. August 20, 1986. (Reproduced in Appendix D, Item 2.)

14. Background Document - Subtitle C - Identification and Listing of Hazardous Waste. PB 81-190035, U.S. Environmental Protection Agency, Washington, D.C. May 1980. pp. 105-143.

KENTUCKY GEOLOGICAL SURVEY
UNIVERSITY OF KENTUCKY, LEXINGTON SERIES X, 1976
Wallace W. Hagan, Director and State Geologist

WATER IN A LIMESTONE TERRANE IN THE BOWLING GREEN AREA, WARREN COUNTY, KENTUCKY

T. Wm. Lambert



REPORT OF INVESTIGATIONS 17

KENTUCKY GEOLOGICAL SURVEY
UNIVERSITY OF KENTUCKY, LEXINGTON SERIES X, 1976
Wallace W. Hagan, Director and State Geologist

WATER IN A LIMESTONE TERRANE IN THE BOWLING GREEN AREA, WARREN COUNTY, KENTUCKY

T. Wm. Lambert
U. S. Geological Survey

Prepared by the United States Geological Survey in cooperation with the Kentucky Geological Survey

REPORT OF INVESTIGATIONS 17

WATER IN A LIMESTONE TERRANE IN THE BOWLING GREEN AREA, WARREN COUNTY, KENTUCKY

T. Wm. Lambert

ABSTRACT

The Bowling Green area, which includes about 170 square miles (440 km^2)[1], illustrates some of the water problems in a karst plain. The karst plain is fairly flat to gently rolling, contains numerous closed depressions, and is underlain by a thick sequence of limestone. The Dripping Springs escarpment forms the northern boundary and generally limits the development of the area beyond.

Barren River and its tributary, Drakes Creek, drain a limestone terrane and are used for nearly all public and industrial water supplies within the Barren River basin. Of the total pumpage of 8 million gallons per day (0.35 m^3/s), nearly 6.5 million gallons (0.28 m^3/s) are pumped from Barren River. The use of ground water for rural domestic and stock purposes is decreasing as the water districts expand into rural areas.

Contamination of ground water in the area has been caused by the presence of animal and solid waste on the karst plain, discharge from septic tanks and privies, and direct discharge of sewage into underground drainage systems. Numerous drill holes, as well as sinkholes and other natural openings, are used to remove storm runoff and other waste. The increased pollution from these sources has led to a decrease in the use of ground water.

Since the completion of Barren River Lake, the average frequency of overbank flooding of Barren River has been reduced to once every 2 years. A low flow of 100 cubic feet per second (2.8 m^3/s) is maintained on Barren River at Bowling Green by the release of sufficient water from the reservior. Overbank flooding of Drakes Creek remains the same, occuring on the average once every 1.5 years.

Flooding of sinkholes, a major problem in the Bowling Green area, may be reduced by lowering the river stage on Barren River by the placement of flood-control dams on Bays Fork and Drakes Creek. However, a high-intensity rain may still cause flooding within the area. High-water marks for these sinks need to be determined, and zoning restrictions should be enacted to prevent future development in sinkhole areas.

Development of the area south of Bowling Green may increase the runoff and cause more flooding. Consideration should be given to development of the higher ground north and northwest of Bowling Green where the likelihood of flooding would be much less.

---

[1] The figures shown in parentheses are equivalent values expressed in metric units. See the Appendix for a discussion of conversion from English to metric units.

DYE TRACES OF LOADING RAMP DRAINAGE WELL AND PAINT VATS AT D.E.S.A. CORPORATION, INDUSTRIAL DRIVE, BOWLING GREEN, KENTUCKY

DESA LOADING RAMP DRAINAGE WELL DYE TRACE

On March 21, 1985 at 9:12 AM, two liters of Rhodamine WT (20% solution) dye were injected into the DESA loading ramp drainage well and flushed with 23,000 gallons of water. The drainage well, located on the south loading ramp, receives storm water runoff from a nearby roof downspout and from an excavated approach to the loading ramp. In addition, runoff water from the ramp itself flows through a grate directly into the well.

Exploration of the well revealed that it was excavated rather than drilled and that it was approximately 3 feet by 3 feet by 8 feet deep. The concrete-walled well directs storm water into a partially soil-filled, vertical crevice extending southwest-northeast in the limestone bedrock.

An Isco automatic water sampler was placed at the Lost River Rise previous to the start of the trace. Figure 1 shows the dye flow-through at the Rise. The water samples were analyzed for dye on a Turner fluorometer at the Hydrology Research Laboratory at Western Kentucky University. Dye concentrations were somewhat lower than expected but indicate a good trace. Turbidity associated with heavy rains will often produce low fluorometric readings on the fluorometer, but heavy rains did not occur during the trace. Also, the dye flow-through curve has the characteristic shape of a slug injection of dye into the Lost River. It is therefore believed that the low dye concentration levels indicate that much of the dye was absorbed by the soil and/or dispersed in a perched water table. The rapid flow-through, however, indicated that some of the dye was flushed almost directly into the fast-flowing Lost River.

Figure 2 indicates the probable route taken by the dye to the Lost River Rise. Notice that the Lost River is located only 300 feet east of the DESA loading ramp drainage well. A tributary stream flowing through a passage referred to by cavers as the "Ultimate Scunge" enters the Lost River almost at the closest point to the DESA loading ramp. Water samples were not collected from the Ultimate Scunge tributary during the trace due to the difficulty of access. However, water samples collected from the Scunge tributary in July were positive for Rhodamine WT dye. Since water samples taken from the perched water table directly above the Scunge passage were also positive, it appears that some dye from the loading ramp trace was still in the perched water table and was being slowly released into the Ultimate Scunge tributary.

INTRODUCTION

Concentration of the activities of man in the urban complex of Bowling Green causes a multiplication of water-related problems. As the Bowling Green area develops, more water-related problems will be created, the effect of any one problem will be greater, and metropolitan planners will assume a more important role in water management.

Based on present data, the Barren River will furnish sufficient water for the Bowling Green area into the 21st century. Flooding of land adjacent to streams or sinkholes is a problem, and as monetary pressures tend to force the use of such land for buildings, the damage due to flooding will be increased. Urban development of rural land without adequate provision for disposal of wastes may increase the pollution of the subsurface environment.

The purpose of this report is to describe and evaluate the water-resources system of the Bowling Green area and to identify present and future water problems. It will aid local and state officials and other interested groups or persons in the analysis of water-resources data, and will provide information to serve as a basis for decisions concerning local water-resources problems by the Bowling Green-Warren County Planning Commission. Information that will aid in solving problems of local flooding and well construction is presented.

Acknowledgments

This report was prepared in cooperation with the Kentucky Geological Survey, University of Kentucky. The report and study were done as part of a 5-year plan of cooperative investigations of the water resources of Kentucky. The study was aided greatly by the interest and cooperation of many well owners. Special thanks are due Charles Cherches of the Bowling Green-Warren County Planning and Zoning Commission; N. H. Huffman of the Bowling Green-Warren County Chamber of Commerce; Tom Montgomery, formerly the head of the Water-Sewer and Sanitation Commission; and Wayne Riley, Fish and Wildlife Law Enforcement Officer of the Kentucky Department of Fish and Wildlife Resources.

Location and Extent of Area

Warren County is in south-central Kentucky about 60 miles (97 km) north of Nashville, Tenn., and about 120 miles (193 km) south of Louisville, Ky. The area of study, about 170 square miles (440 km^2) in the southern half of Warren County, includes most of the planning area of the Bowling Green-Warren County Planning and Zoning Commission (Fig. 1).

The northern and western boundaries of the area are formed by the prominent Dripping Springs escarpment. The southern boundary is the Simpson County line from the Gasper River-Drakes Creek drainage divide to Drakes Creek and from there northward along Drakes Creek to Barren River, and eastward along Barren River to the eastern boundary, a north-south line running through Oakland from the Dripping Springs escarpment to Barren River. The west edge is approximately the drainage divide with Gasper River.

PHYSICAL ENVIRONMENT

Physiography

Warren County is divided into three physiographic areas: the Mammoth Cave plateau, the Pennyroyal plain, and the dissected area adjacent to Allen County. Several streams cross the county, but a large part of the county lacks an integrated surface-drainage system.

The Dripping Springs escarpment (Fig. 1), an abrupt rise of about 200 feet (61 m), separates the fertile Pennyroyal plain from the less fertile land of the Mammoth Cave plateau to the north. The maximum relief occurs in outliers from the escarpment. The Mammoth Cave plateau is underlain by limestone capped by sandstone. The plateau slopes gently northward on the dip slope of the underlying rocks. Few streams cut through the escarpment, and the Barren River is the only stream in the area of study to cut through the escarpment and the Mammoth Cave plateau.

In Warren County, the Pennyroyal plain extends from the southeastern part of the county to the north and northwest and terminates at the escarpment. It is predominantly a flat plain characterized by numerous disappearing streams and by closed depressions known as sinkholes.

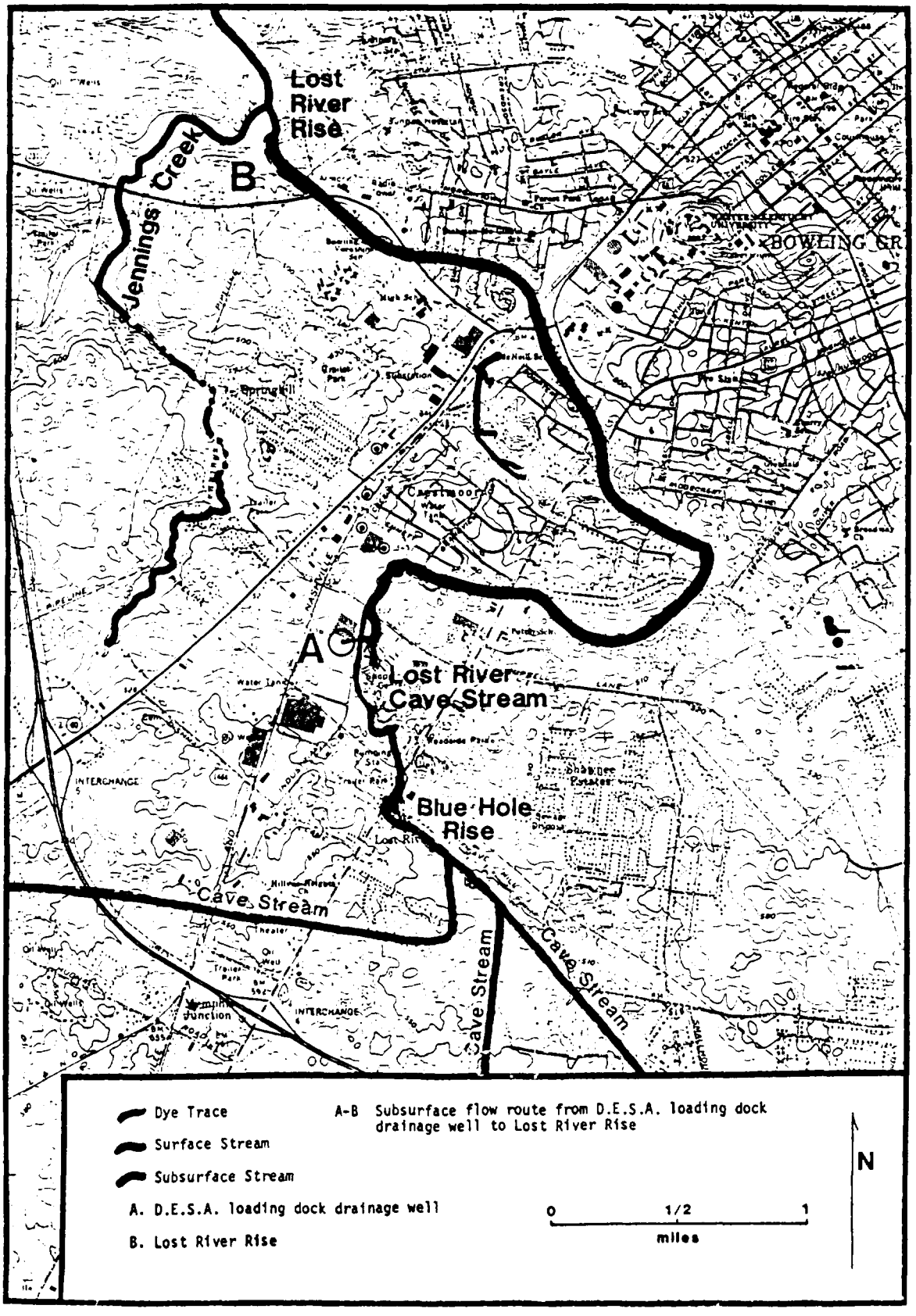

Lost River Rise
Jennings Creek
B
A
Lost River Cave Stream
Blue Hole Rise
Cave Stream
Cave Stream
Cave Stream
BOWLING GR
Dye Trace
Surface Stream
Subsurface Stream
A. D.E.S.A. loading dock drainage well
B. Lost River Rise
A-B Subsurface flow route from D.E.S.A. loading dock drainage well to Lost River Rise
0 1/2 1
miles
N

Figure 2.

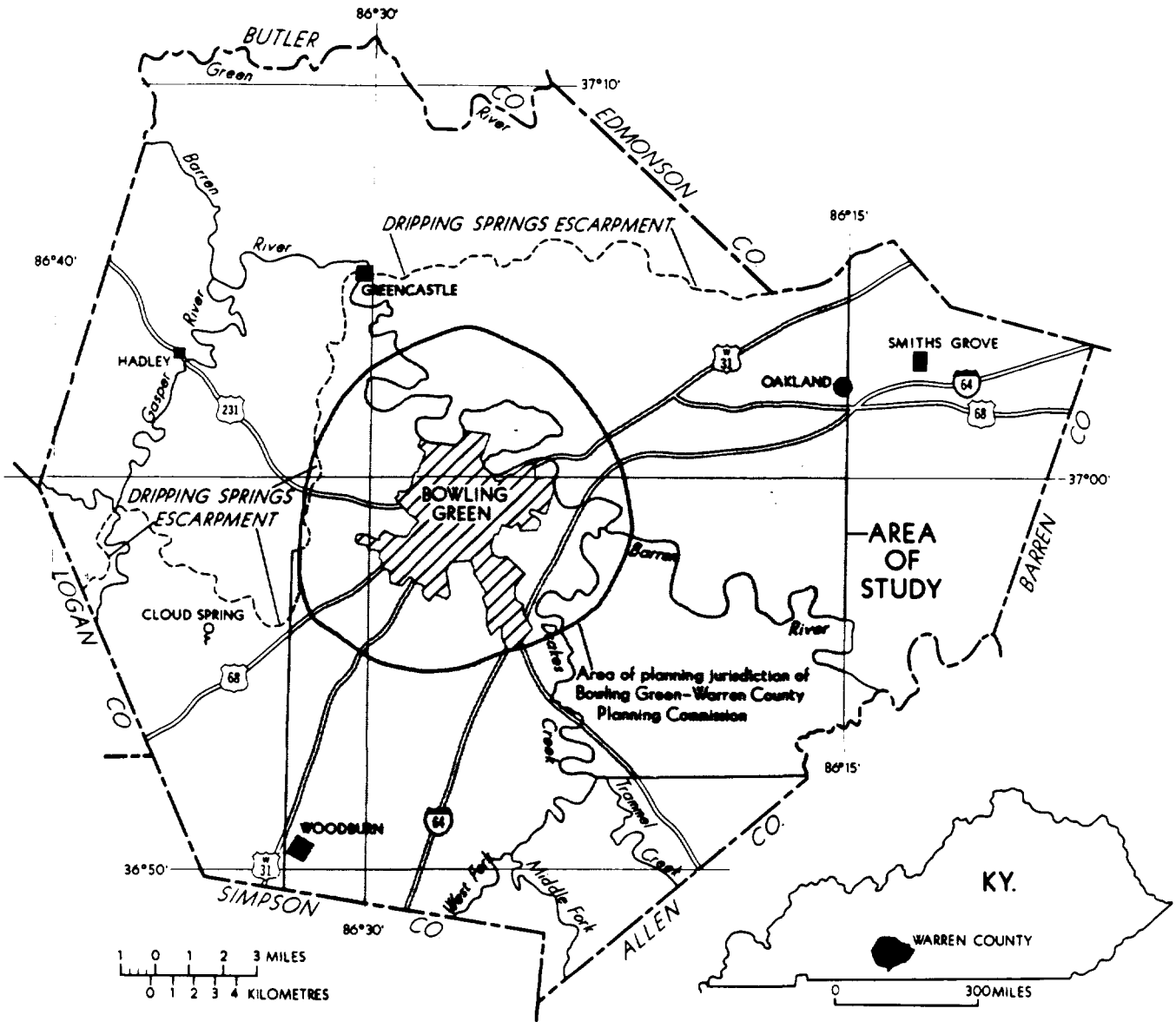


Figure 1. Area of study in Warren County.

The sinkholes vary greatly in size, ranging in length from a few feet to several hundred feet and in depth from about 5 feet to 100 feet (1.5 to 30.5 m). Some sinks are nearly circular. Such features mark the Pennyroyal plain as a karst plain. Disappearing surface streams, flowing downdip toward the northwest, are common.

The area adjacent to the boundary with Allen County is moderately dissected, and the bedrock consists of limestone, siltstone, and chert. The streams draining this area are Barren River, Bays Fork, Trammel Creek, and numerous small streams, in contrast to the streamless Pennyroyal plain. The local relief may reach about 230 feet (70 m) and commonly is 100 to 150 feet (31 to 46 m).

Climate

The climate of the Bowling Green area is typical of the Midsouth and Midwest—temperate with rather wide extremes of temperature and precipitation. The area lies within the path of frequent moisture-laden pressure systems moving northeastward from the Gulf of Mexico which gives rise to rapid changes in weather conditions.

The average annual precipitation for 83 years of record is about 48 inches (1220 mm); the annual precipitation has ranged from 30.50 inches (774.7 mm) in 1930 to 63.73 inches (1618.7 mm) in 1935 (Fig. 2). The monthly precipitation extremes at Bowling Green range from a low of 0.03 inch (0.76 mm) in October 1924 to a high of 20.70 inches (525.8 mm) in January 1937 (Table 1). From 1966 through 1970, which includes the period of this study, the annual precipitation each year has been nearly normal. The potential evapotranspiration computed from the Thornthwaite equation and shown in Table 1 indicates that from May into October, little or no recharge to the aquifers or to soil moisture occurs from precipitation. In this period the demands for water by vegetation exceed precipitation. From October into May, precipitation exceeds the demands for water by vegetation, and recharge occurs to the aquifers and to the soil-moisture zone. By comparison, evaporation from small water bodies averages 37 inches (940 mm) per year, with 75 percent of the evaporation occurring from May through October.

Table 2 (Cook and others, 1969) indicates the monthly precipitation probabilities for the Bowling Green area. For example, the Bowling Green area in June will have an 80-percent chance of receiving less than 6.2 inches (157.5 mm) of rainfall. It is probable that once in every 100 years this area could receive a rainfall of 6.6 inches (167.6 mm) in 24 hours (Table 3). Values from Tables 2 and 3 and the total area of impervious surfaces may be used to approximate the potential runoff within the city under various rainfalls.

The growing season averages 204 days. The average date of the last freeze in the spring is April 8, and that for the first freeze in the fall is October 28. Temperature extremes for the period of record ranged from 45°C on July 28, 1930, to −29.4°C on January 24, 1963.

DEVELOPMENT TRENDS

Population

Bowling Green, situated on Barren River at the geographical center of Warren County, was established in 1797. The populations of Bowling Green,

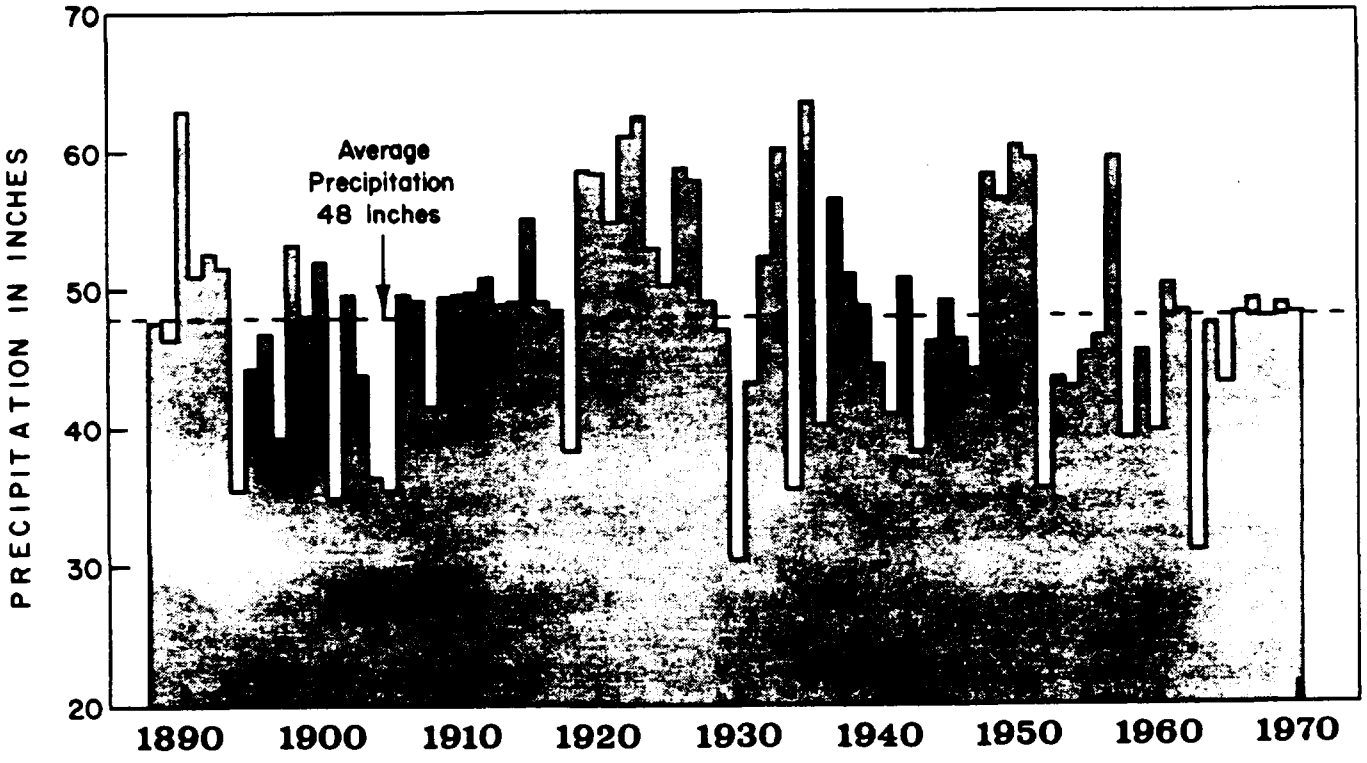


Figure 2. Precipitation at Bowling Green. (Based on data from National Oceanic and Atmospheric Administration.)

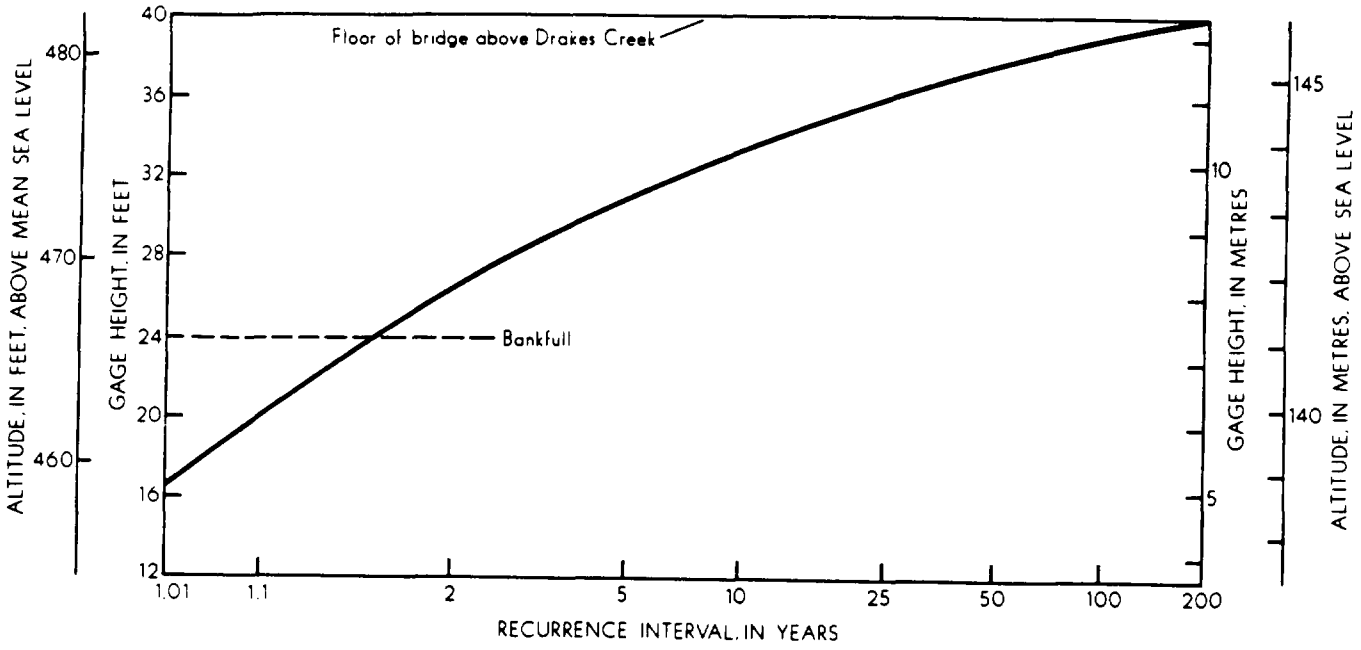


Figure 12. Frequency of maximum river stage for Drakes Creek near Alvaton.

contained 10 mg/l or less of sediment 18 percent of the time and 100 mg/l or less 85 percent of the time. The sediment load of Barren River may have been modified since the completion of Barren River Dam, but sediment samples were not collected during the study.

Impoundments

At present, Barren River Lake is the only major impoundment within the region. The dam is 79.2 miles (127.4 km) above the mouth of Barren River and 41.6 miles (66.9 km) upstream from Bowling Green. The drainage area above the reservoir is 940 square miles (2435 km^2) and the capacity of the reservoir is 46,560 acre-feet (0.057 km^3) at a minimum pool altitude of 520 feet (158.5 m). The total capacity at 590 feet, the maximum pool altitude, is 815,200 acre-feet (1.005 km^3). The capacity between the maximum and minimum pool stages is 768,600 acre-feet (0.947 km^3). The contents (256,360 acre-feet) (0.32 km^3) between 552 (168.2 m) and 590 feet (179.8 m) altitude is reserved for flood control. Contents between minimum pool stage of 520 feet (158.5 m) and seasonal pool stage of 552 feet (168.2 m) altitude is for seasonal low-flow augmentation.

There is also a small impoundment near Three Springs, south of Bowling Green, which is the result of construction of Interstate Highway 65.

Aquifers

Ground water in the Bowling Green area occurs mainly in secondary openings in limestone formations. These include the Warsaw, St. Louis, and Ste. Genevieve Limestones. Generally, the aquifers, or water-bearing parts of these limestones, may be divided into units resembling drainage basins, with each unit having a recharge area where it picks up water and a point or points of discharge where the water is released (Plate 3). Discharge may take place through a spring or series of springs or by upward seepage into a streambed.

The aquifers in the Bowling Green area are the Graham Spring, Lost River, Hardcastle Mill Spring, Barren River, and Drakes Creek aquifers (Plate 3). Except for the Barren River and Drakes Creek aquifers, they are named for the spring outlet. The Barren River and Drakes Creek aquifers contain many small outlet springs; it would be difficult to break down these aquifers into smaller units discharging through individual springs.

Along the ground-water divide of each aquifer, small streams normally flow downdip on the bedrock surface and drain into swallow holes. Within this area, sinkholes are few and are poorly developed; however, a few large sinkholes may

TABLE 5.—MISCELLANEOUS DISCHARGE MEASUREMENTS OF STREAMS

Topographic quadrangle	Stream	Station number	Latitude-longitude	Date	Discharge (cfs)	Temperature (°C)
Bowling Green South	Jennings Creek below Lost River outlet	03-3146.80	36°59'44" 86°28'55"	3- 6-68	32.0	13
				8- 8-68	21.1	—
				8-11-68	9.3	—
				1-15-69	20.5	13
Do.	Jennings Creek at U.S. Highway 231	03-3146.50	36°59'22" 86°29'33"	3- 6-68	3.6	12
				4- 4-68	2,220	—
				4-10-68	40.5	—
				9-11-68	1.2	—
				1-15-69	4.6	12
Do.	Jennings Creek near Lost River	03-3146.10	36°58'16" 86°29'10"	3- 6-68	.75	8
				6- 5-68	5.6	—
				8- 8-68	.20	—
				9-11-68	.15	—
				11-10-68	.15	—
				1-15-69	.53	7
Do.	Unnamed stream at Interstate 65 near Three Springs		36°54'34" 86°25'55"	3- 5-68	.04	11
				6-24-68	30.6	—
Do.	Unnamed stream at Kentucky Highway 884 at Three Springs	03-3145.95	36°55'01" 86°26'15"	3- 6-68	.49	6
				4-11-68	4.45	—
				6-27-68	.47	—
				8- 8-68	.18	—
				9-11-68	.23	—
				11-10-68	1.0	—
				1-16-69	.27	—
Bowling Green North	Unnamed tributary to Barren River		37°01'35" 86°29'22"	3- 6-68	.04	7
Bowling Green South	Unnamed stream at Fairview and Lehman Aves. in Bowling Green		36°59'27" 86°25'54"	4- 8-68	.30	—
				6- 6-68	.004 (est)	—
				8- 6-68	No flow	—
Do.	Unnamed stream 1 mile southeast of Lost River		36°56'39" 86°27'36"	4-10-68	1.8 (Goes dry)	—
Do.	Unnamed stream near Wakefield Drive in Bowling Green		36°59'00" 86°25'10"	4- 8-68	.60	—
				6- 6-68	.05	—
				8- 8-68	No flow	—

exist. The water table is normally at shallow depth and may be in the residual clay where it is sufficiently thick.

A moderate to highly dense concentration of sinkholes is developed from the area of swallow holes to the discharge points. Many sinkholes are deep and cover a considerable area. The deeper sinkholes intercept the water table and are called karst windows. Some sinkholes contain cave entrances, such as Lost River entrance. Sinkholes are actively developing within this area and normally form in the bottoms of other sinkholes. Except in periods of heavy rainfall, the runoff readily runs into the sinkholes to the underlying openings.

In this report, springs are classified into three types—tubular, depression, and seepage. Examples of each type are listed in Table 6. Tubular springs have partially air-filled well-defined openings in which the water moves across the floor of the openings. The flow from tubular springs is highly variable. Depression springs are sub-

REFERENCE NO. 11

DYE TRACES OF LOADING RAMP DRAINAGE WELL AND PAINT VATS AT D.E.S.A. CORPORATION, INDUSTRIAL DRIVE BOWLING GREEN, KENTUCKY

Report Submitted to:

Robert Adams IV
Kentucky Division of Water
Natural Resources and Environmental Protection Cabinet

and

Chris Leggett
Operations
Haztech

and

Fred Stroud III
Emergency Response and Control Section
U.S. Environmental Protection Agency
Region IV

By

Nicholas Crawford, Ph.D.
Hydrology Consultant

September 17, 1985

NUS CORPORATION AND SUBSID/		ECON NOTE
	Reference No. 8	
CONTROL NO. F4-8909-20	**DATE:** 1-3-90	**TIME:** 8:24
DISTRIBUTION: Eaton Corporation		
BETWEEN: Mohammed ~~Alanddin~~ Alauddin MK	**OF:** Kentucky Division of Waste Management	**PHONE:** (502) 564-6716
AND: Mitch Cohen, NUS Corporation MK		

DISCUSSION:

Mohammed told me that Eaton Corporation filed a Part A Hazardous Waste Permit application on 11/19/80. They then submitted a closure plan for the four impoundments in June of 1984. Final closure plan approval came in October of 1984. In December of 1984, Kentucky released Eaton Corporation from consideration as a hazardous waste facility. The facility has never field formal paperwork to withdraw interim status since the state dropped its consideration. Current status of Eaton Corporation is that of generator.

Reference No. 9

December 11, 1984

Mr. H.Kitscha, Vice President
Eaton Corporation
Industrial control and
Power Distribution Operations
4201 North 27th Street
Milwaukee, Wisconsin 53216

RE: Application #84-141, Actual Closure of Hazardous Waste Facility EPA I.D. #KYD09-895-0306, Bowling Green, Kentucky

Dear Mr. Kitscha:

The Division of Waste Management approves your closure certification correspondence dated October 18, 1984, and that of Mr. Stewart Edwards, P.E., from Dames and Moore, dated October 15, 1984. The two declarations satisfy 401 KAR 35:070 Section 6 for owner and independent professional engineer certification of closure.

Eaton Corporation, Standard Power Division in Bowling Green is no longer considered a hazardous waste facility by the Commonwealth of Kentucky.

If you have any questions, p ve contact Mr. Geroge Gilbert, P.E., at (502) 564-6716, Ext. 237.

Sincerely,

J. Alex Barber, Director
Division of Waste Management

JAB:GPGreg

cc: Don Curry, Area Supervisor
Mel Smith, Eaton Corporation, 2901 Industrial Drive, Bowling Green, Ky. 42101
Stuart Edwards, P.E., Dames and Moore, 644 Linn Street, Suite 501, Cincinnati, Ohio 45203

NUS CORPORATION AND SUBS	Reference No. 10	ELECON NOTE

CONTROL NO. F4-8910-22	DATE: December 18, 1989	TIME: 14:30

DISTRIBUTION: Eaton Corporation

BETWEEN: Jack Watkins	OF: Kentucky Division of Waste Management	PHONE: (502) 843-5475

AND: Mitch Cohen, NUS Corporation

DISCUSSION:

Jack said that the current status of Eaton Corporation is that of generator. There were no violations noted during recent inspections.

TABLE 6.—MISCELLANEOUS DISCHARGE MEASUREMENTS OF SPRINGS

Topographic quadrangle	Name of spring	Latitude-longitude	Type of opening	Date	Discharge (cfs)	Temperature (°C)	Chemical analysis available
Drake	"Lower and Upper"	36°49'13" 86°27'21"	Tubular	4-25-69	4.5	13.9 (Lower) 14.4 (Upper)	Yes Yes
Do.	Kelley	36°50'59" 86°25'25"	Tubular	4-24-69	4.1	14	Yes
Bowling Green South	"Cave behind Mall"	36°57'59" 86°28'26"	Tubular cave spring	1-16-69	11.4	14	Yes
Do.	Lost River	36°57'13" 86°28'23"	Depression	2-18-42	83.0	—	
				10- 8-58	11.6	—	
				11-14-58	8.0	—	
				12-24-58	9.1	—	
				5-16-62	35.4	16	Yes
				8-22-62	8.1	—	
				9-17-63	6.9	14	Yes
				10-22-63	5.0	14	
				11-20-63	4.1	14	Yes
				6- 6-68	105 [1]	15	Yes
				9-11-68	10.8	16	
				1-15-69	13.8	14	
Do.	Lost River outlet	36°59'34" 86°28'54"	Tubular	9-17-63	8.9	15	Yes
				3- 6-68	28.4	—	
				9-11-68	8.1	—	
				1-15-69	15.9	—	
Do.	Unnamed	36°58'59" 86°29'34"	Tubular	11-25-68	.48	—	
Bowling Green North	Graham	37°01'17" 86°23'17"	Depression	6- 7-62	62.6[2]	14	Yes
				9-17-63	4.5 (est)[2]	14	Yes
				9-13-68	21.8[2]	14	Yes
Rockfield	Cloud	36°56'09" 86°35'03"	Tubular	10-21-53	.38	15	
				4-29-54	9.1	14	Yes
				8-18-54	.51	13	Yes
				10-10-54	.47	16	Yes
				2-28-55	55 (est)	13	Yes
				5-27-55	11.7	14	Yes
				8-25-55	1.4	15	Yes
				11-11-55	.51	14	Yes
				3- 1-56	29.2	14	Yes
				6-20-56	1.5	14	Yes
				9-26-56	.37	14	Yes
				2-21-57	43.7	13	Yes
				5-10-57	4.0	14	Yes
				8- 7-57	?	16	Yes
				11-19-57	Too high	—	
				3- 3-58	5.6	14	
				5-22-58	10.8	14	Yes
				8-20-58	2.6	14	Yes
				11-20-58	1.05	14	Yes
				4-18-61	47.6	10	Yes

[1] Discharge measured below dam. Most of the flow is believed to bypass the dam and to go through a connecting opening.
[2] Discharge not measured at junction with Barren River. Flow is believed greater than shown or estimated.

merged tubular springs and are divided into those having a surface discharge and those without a surface discharge. Most depression springs have a high variability of outflow. Seepage springs have no visible openings and have a low variability of outflow. Locations of springs and their discharges are shown on Plate 3 and are listed in Table 6.

Types of Openings

Ground water in the limestone aquifers of the Bowling Green area occurs in enlarged openings along bedding planes and vertical joints and in "gravel deposits." Water in the joints and bedding planes may be in contact with air.

Openings in the limestone are enlarged by differential chemical solution of the limestone and by the abrasive action of chert fragments and sediment during high flow. In some openings, at the air-water contact, water may be ponded due to the irregular shape of the limestone surface and by deposits of silt. These ponds may contain a few to several thousand cubic feet of water in storage, particularly during the winter and spring.

The term "gravel deposits," is applied by well drillers to two types of material. The most common type is honeycomb rock in which the calcium carbonate of the rock has been leached out leaving a cherty honeycombed zone. This type of material can yield a large volume of water, which normally remains clear after heavy rains.

The second type of material is the loose, fossiliferous, silicious, gravelly sand filling the enlarged solution openings. Slotted casing or a well screen must be installed in a well in this type of deposit. Yields from this type of material range from poor to excellent, but often may be increased by proper well development.

Recharge

Recharge to the aquifers is from precipitation, flooding by streams, and the outflow from domestic sewage disposal systems. Precipitation is the major source of recharge, but, with the development of water districts, water from septic systems is also becoming a potential source of recharge. Water from floods on Barren River and Drakes Creek may back up into solution openings to recharge the aquifers. This volume, however, is small compared with the total amount of potential recharge available.

Water from precipitation and septic systems enters the aquifer in two ways: by direct runoff and downward percolation. Direct recharge is by surface runoff into sinkholes and crevices. Water flows overland and terminates either at a sinkhole or disappearing stream. The ability of the sinkholes or swallow holes to absorb the runoff depends on the depth to the water table at that point, surface-runoff characteristics, and amount of water transmitted through the solution openings. The solution openings below the surface are a complex system ranging from paper-thin cracks to caverns of subway-tunnel size. Normally, the larger openings are within a few tens of feet of the surface, depending on the position of the water table, land-surface altitude, and the geologic history of the region. These openings decrease markedly in size with depth. The large openings near the surface are the natural storm drains in limestone, and during periods of heavy rainfall they are filled with silt-laden water. In certain areas, as east of Bowling Green, there may be several horizons of air-filled openings that serve or have served as natural storm drains.

The second form of recharge, downward percolation, takes place near the surface and involves the residual cover, or regolith, and the joints in the limestone. The joints filled with residuum function as funnels for the downward movement of water and as a storage reservoir at the top of the enlarged joints. These storage reservoirs feed water downward into crevices after the cessation of the rain, but at a decreasing rate.

Discharge

Types of ground-water discharge in the Bowling Green area are evapotranspiration, pumping, springs, and seepage into streambeds. Pumping from the aquifers in this area is quite small compared with evapotranspiration and discharge to the streams. Discharge is measured by observing the change in water levels in wells and in the flows of springs. Indirect data may be obtained from runoff and precipitation records. Over a long period of time, discharge and recharge equal each other.

Because ground water in the underground openings forms a sloping surface from the recharge to the discharge areas, the configuration of the water surface and the direction of flow may

be shown by means of a contour map (Plate 3). The direction of ground-water flow is downslope, perpendicular to the contours. Factors affecting the shape and accuracy of the contours are poorly spaced control wells, errors in computing land-surface altitudes, pumpage, geological conditions, recharge, and lack of data.

To understand how the aquifers behave, the relationship between the streams and aquifers must be understood. The discharge of a stream is related to the volume of water contained in the karst limestone openings. The larger the volume, the more complex the relationship becomes.

The volume of water stored in an aquifer may be either increased or decreased by changing the gradient of the water surface in the aquifer. This gradient change may be accomplished either by a change in the base level of the stream, by artificial recharge, by dewatering of the aquifer, by an enlargement or reduction in the size of the surface drainage basin, or by a change in the amount of recharge to the aquifer. Time of arrival of a flood crest from a stream, high discharges from springs, or both, will add further to the complexity of the relationship. Detailed time data, water levels in the aquifers, and gage heights are needed in the Bowling Green area to determine the exact relation between Barren River, Drakes Creek, and the aquifers.

Spring flows may be correlated with the flows of streams where sufficient data are available. There is a fair correlation between the flow of Cloud Spring and the flow of Barren River and Drakes Creek (Fig. 13). Cloud Spring, located just west of the study area, is in the headwaters of Gasper River, a tributary of Barren River. Differences in rainfall within the various parts of Barren River basin affect the correlation between the flows.

When withdrawals of ground water exceed recharge, ground-water levels decline. Above-normal annual precipitation during a period of several years increases the water stored, and is reflected by a corresponding rise in water level. Dams constructed across streams, spring outlets, and in caves raise the water level and increase the amount of water stored in the aquifer; major dams across streams at selected points may increase the size of the ground-water basin by shifting the ground-water divides. An increase in size of the ground-water basin could provide a larger base flow to the streams.

Water to sustain the low flow of the streams and springs is discharged slowly from the ground-water reservoir. Compare the hydrographs of a well near Lost River with one near Rich Pond (Fig. 14). Because of larger openings in the limestone, only 30 days were required to lower the water level in the well south of Lost River 45 feet (13.7 m), or to within 3 feet (0.9 m) of its base level. It required 150 days to lower the water level 28 feet (8.5 m) in the Rich Pond well, and it still was a few feet above its base level.

In the Bowling Green area, ground-water pumpage is at a minimum and is being reduced each year by the enlargement of water districts. A small percentage of the people still draw water by hand or use wind-driven cylinder pumps, but most wells are equipped with low-yielding electric cylinder pumps. Jet and submersible pumps are beginning to replace the cylinder pumps as the latter wear out. Hydraulic rams are used on some springs to obtain water for domestic use.

Graham Spring Aquifer

The aquifer with the largest potential yield in the Bowling Green area is the Graham Spring aquifer (Plate 3). Its ground-water divide parallels Barren River and extends outside the area to the drainage divide of Beaver Creek. The aquifer occurs entirely or partly in the Bristow, Polkville, Smith Grove, Meador, and Lucas topographic quadrangles, and drains more than 130 square miles (337 km^2). About one-third of the total area is in the study area. A narrow strip of land south of the boundary of the Graham Spring aquifer drains toward Barren River. For the purpose of this report, essentially the entire area north of Barren River is included within the Graham Spring aquifer. Rays Branch may be the discharge point for underflow north of Bowling Green and could be referred to as a separate aquifer, but it is discussed here as part of the Graham Spring aquifer. Most wells yield sufficient water for domestic use, but yields tend to decrease near the ground-water divide because of lower permeability. The large base flow of Graham Spring suggests that an area of potentially large yields may exist east of Bowling Green.

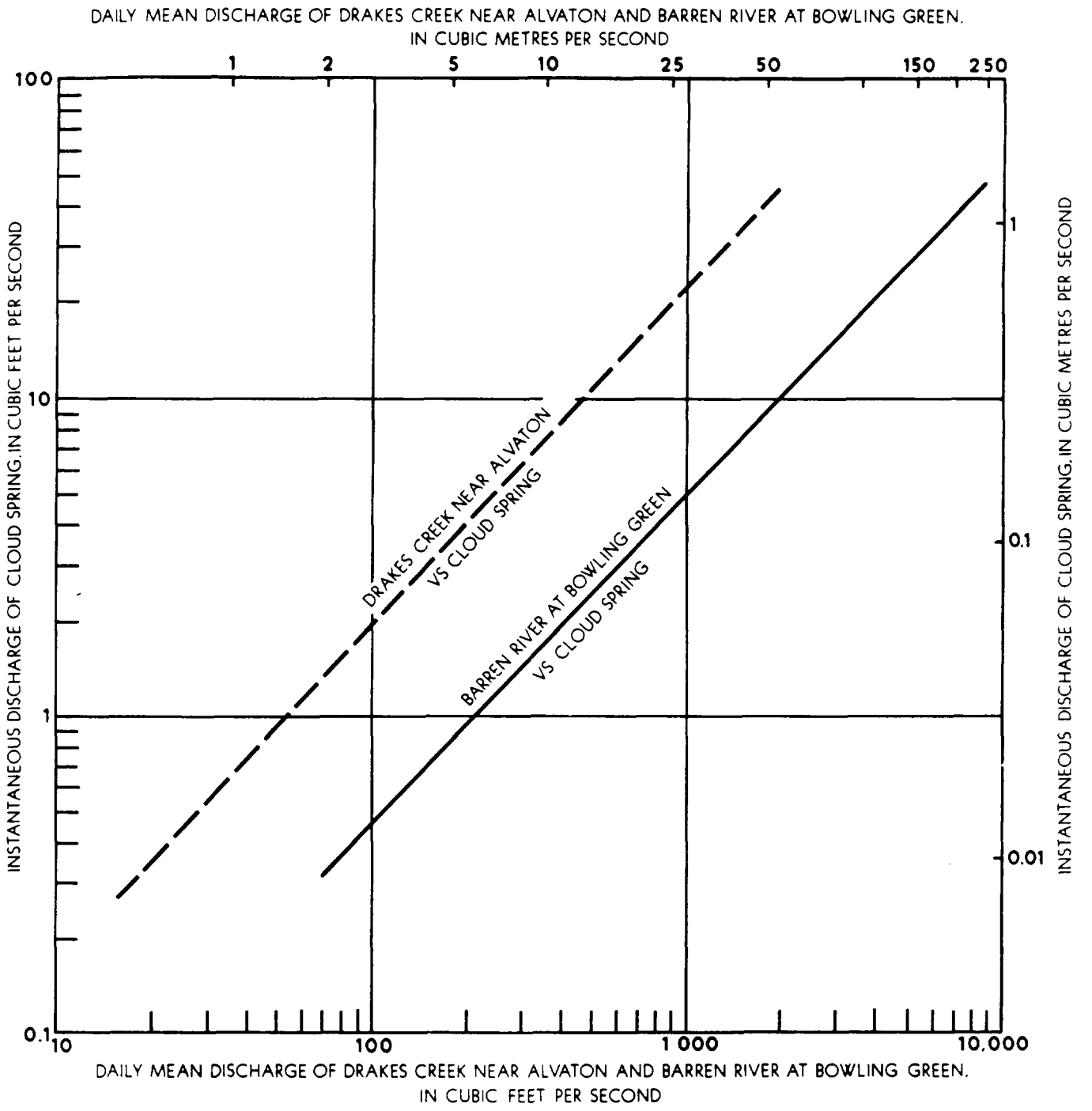


Figure 13. Relation of spring discharge to river discharge in the Bowling Green area.

Wells in the Graham Spring aquifer range in depth from 50 to 350 feet (15.2 to 106.7 m). The altitudes of the bottoms of the wells range from 380 to 500 feet (116 to 152 m); the lowest altitudes commonly occur near Barren River.

In the Squire Smith Road and Massey Road area (Plate 3), the differences in water levels suggest either a deeper aquifer and a perched water body or a ground-water divide along Squire Smith and Massey Roads. The low water levels recorded in this area may be the result of excessive drawdown in the low-producing aquifer. In the Bristow area, a perched water body is indicated by a difference in water levels encountered in wells.

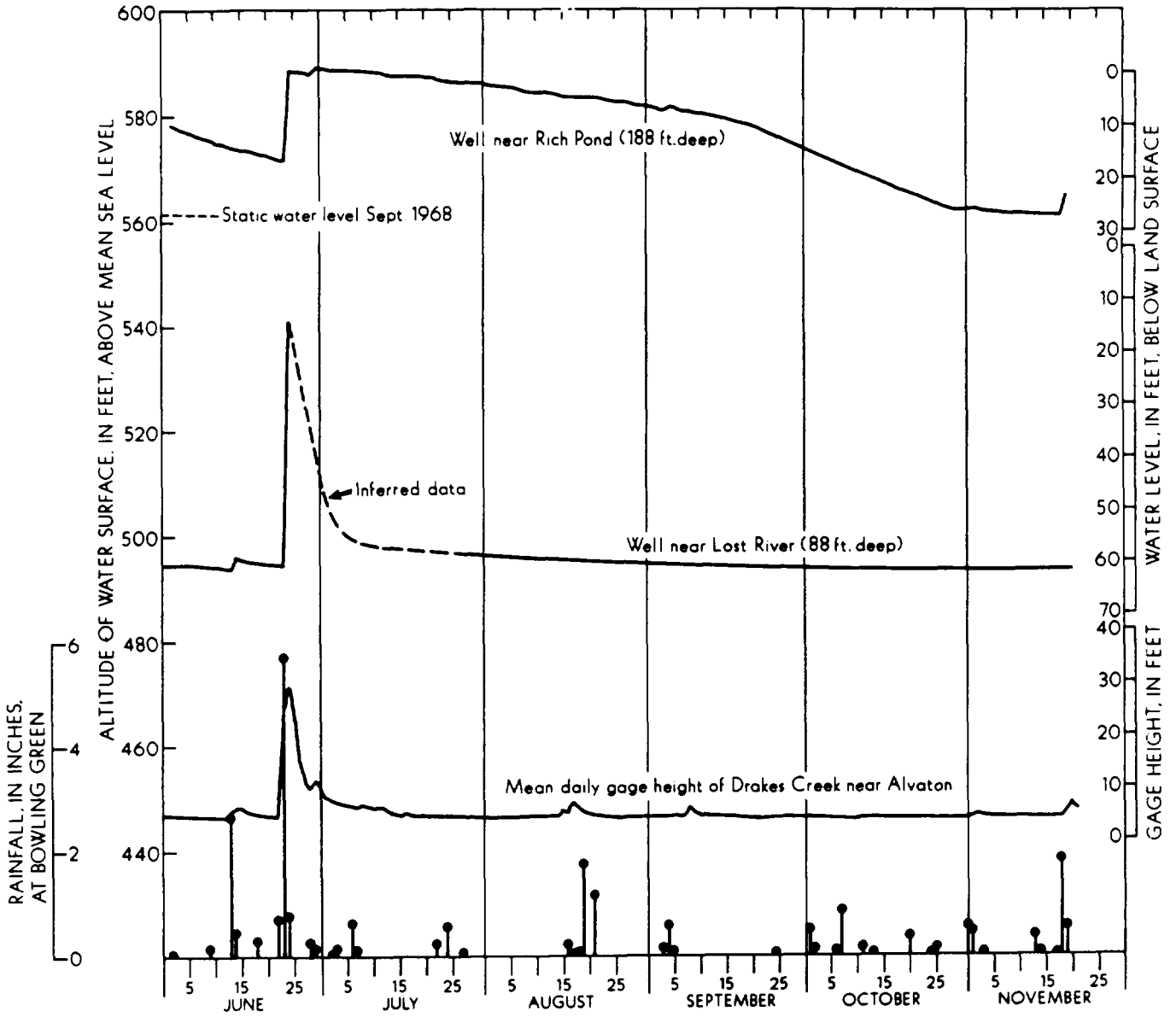


Figure 14. Hydrographs showing effects of a storm, June 22-24, 1969, on water levels in wells in the Bowling Green area.

Water levels in the Graham Spring and Barren River aquifers, and in part of the Lost River aquifer, are controlled by the upper pool stage of Barren River at Greencastle (406 feet [123.7 m] above mean sea level). The 400-foot (121.9-m) water-level contour passes across Barren River at the lock at Greencastle and at Lock 5 (upper pool stage 412 feet [125.6 m]) on the Green River. The position of the 440-foot (134.1-m) water-level contour is determined by one control well in the Mammoth Cave plateau and indicates a ground-water divide approximately coinciding with the surface-drainage divide between Barren and Green Rivers.

The movement of ground water in the Graham Spring aquifer partly coincides with the dip slope of the underlying bedrock and is toward the northwest away from Barren River. Flow along the northern boundary of the area is southward from the Dripping Springs escarpment. In the central part of the aquifer, the flow from the south and north changes to a westward movement to discharge at Graham Spring. The aquifer probably extends to the divide of Beaver Creek.

Generally, the water quality is poorest in the area of the lowest water level in the Graham Spring aquifer. The well with the largest pumping capacity, 30 gpm (1.9 l/s) at McLellan Stone Co., has the highest concentration of hydrogen sulfide.

Lost River Aquifer

The Lost River aquifer (Plate 3) drains approximately 72 square miles (186.5 km^2), chiefly south of Bowling Green, and discharges at Lost River outlet near Lampkins Park on the west side of the city. The aquifer boundary is roughly the same as the surface-drainage divide of Jennings Creek. Sufficient data are not available to define the ground-water divide within the city of Bowling Green.

Little information is available on the yields of wells tapping the Lost River aquifer because of the rapid change in ownership of the land and low-capacity pumps. Local drillers indicate that wells commonly will yield about 2 gpm (0.1 l/s). Yields greater than 2 gpm (0.1 l/s) may be obtained from deeper wells, but the water contains an objectionable amount of hydrogen sulfide or sulfate. Along the southern boundary of the aquifer, numerous dry holes were reported. No large-production wells are known to tap this aquifer. The large base flow of Lost River and Lost River outlet suggest that areas of potentially large yields may exist along the west and southwest edge of Bowling Green.

Wells in the Lost River aquifer range in depth from about 19 to 188 feet (5.8 to 57.3 m). In general, the altitudes of the bottoms of the wells range from 470 feet (143.3 m) on the extreme southern edge of the ground-water basin to 380 feet (115.9 m) near Barren River. Some deeper wells are probably plugged oil-test wells. Hydrogen sulfiide is more of a problem in the Lost River aquifer than the Graham Spring aquifer. Although a relation exists between the water level and the hydrogen sulfiide content in the Graham Spring aquifer, no such relation appears to exist in the Lost River aquifer.

Water levels in the Lost River aquifer are partly controlled by the upper pool stage of Barren River at Greencastle and thus would be higher than 406 feet (123.7 m) above mean sea level. The movement of ground water coincides with the dip slope of the underlying bedrock and is toward Barren River, as indicated by the water-level contours (Plate 3).

Hardcastle Mill Spring Aquifer

Hardcastle Mill Spring aquifer is south of Barren River, east of Drakes Creek, and west of Bays Fork (Plate 3); it drains about 40 to 50 square miles (104 to 130 km^2). The drainage divide extends into the Allen Springs quadrangle to the south and near the valley walls of Bays Fork and Drakes Creek. Its western boundary is uncertain. This aquifer has a discharge point at Hardcastle Mill Spring, an area of disappearing streams, and an area of highly developed sinks between the streams and spring, which had an estimated discharge of 3.5 cfs (100 l/s) in the summer of 1968. Data were collected only along the southeastern edge of the aquifer. Ground-water contours in the remaining part of the aquifer are based only on four control points. Yields greater than 2 gpm (0.1 l/s) may be obtained from most wells; no large-production wells are known in this aquifer.

Depths of the wells range from 30 feet (9.1 m) south of Greenhill to 139 feet (42.4 m). The bottom altitude of the wells ranges from 540 feet (164.6 m) southeast of Motley to 470 feet (143.3 m) north of Greenhill. The movement of ground water is probably controlled by a sinking creek at Greenhill which discharges at a spring at Hardcastle. The water table slopes from 600 feet (182.9 m) above mean sea level to 470 feet (143.3 m) at Hardcastle.

Wells and springs yield water typical in quality for a limestone terrane. Hydrogen sulfide occurs in objectionable amount in water from deeper wells around Greenhill.

Barren River Aquifer

The Barren River aquifer occupies both sides of Barren River, as shown on Plate 3; the boundary is indefinite. Although numerous small springs occur along Barren River, the aquifer yields limited amounts of water to wells because of the small size of the area contributing to recharge. Yields from wells may be sufficient for domestic purposes; however, in areas of closely spaced water-level contours on Plate 3, rapid discharge occurs to Barren River and little water remains in the aquifer. Closely spaced water-level contours (Plate 3) occur south of Polkville, north of Bowling

Green, and west of Jennings Creek. In areas where the water-level contours are wider apart, there is less rapid discharge to Barren River. In broad areas such as in the city of Bowling Green, the water table is nearly flat and is controlled by the stage of the pool behind the dam at Greencastle.

Wells range in depth from 30 feet (9.1 m) to 182 feet (55.5 m). Most wells are bottomed at altitudes similar to those in the other aquifers. Quality of water from the wells and springs is typical of a limestone terrane. Hydrogen sulfide occurs in water from wells west of Jennings Creek and west of Bays Fork.

Drakes Creek Aquifer

Drakes Creek aquifer (Plate 3) occupies an area along both sides of Drakes Creek. The boundaries of the aquifer are uncertain. Although numerous springs occur along Drakes Creek, the aquifer appears to yield a limited amount of water because of the small size of the recharge area. Most wells yield sufficient water for domestic use. Wells are completed just above the base level of the stream and yield water typical of limestone terrane. Wells drilled below the base level of the valley yield water containing an objectionable amount of hydrogen sufide.

Deep Saline Aquifers

At least two saline aquifers underlie Warren County; they are separated by the Chattanooga Shale. Saline water above the Chattanooga Shale is in limestone of Mississippian age below the local base level of the streams. Oil is also present in this zone at some locations. This water has an average specific conductance of 70,000 micromhos per cm and about 60,000 mg/l of dissolved solids.

Saline water also occurs in the Knox Dolomite of Early Ordovician and Late Cambrian age below the Chattanooga Shale. One analysis shows the water to be of better quality than that from the Mississippian saline aquifer (10,300 mg/l of dissolved solids). This water is from a well that flowed about 1 gpm (0.06 l/s). The potential yield of the Knox Dolomite probably is low. The concentration of dissolved solids increases from the southeastern part of the county to the northwest.

Quality of Water

The quality of water in the aquifers is constantly changing, but approaches a steady state in late summer and fall. The quality is related to the intensity and type of precipitation, natural vegetal cover, topography, types and characteristics of soils, types of agricultural cover, structure of the rocks, types of rocks and their chemical composition, and developments attributed to man. Water quality changes continuously with increasing and decreasing amounts of water stored in the aquifers.

Chemical analyses of water from selected wells and springs in the Bowling Green area are listed in Table 7. Water from most wells and springs is of the calcium bicarbonate type, but water from one well near Warren County High School is a sodium chloride type, which may indicate migration of saline water from below or contamination from a local surface source. Several wells yield water of the calcium sulfate type. Many of these wells yield water that has a high hydrogen sulfide content. Based on the analyses, most water from wells having a high specific conductance is of the calcium sulfate type (Table 7). A few of the analyses are of brines associated with oil wells. Most brines occur at levels below the base of streams in the area and are not utilized at present. Nitrate is present in significant amounts in water from some drilled wells. Nitrate above the local average of about 10 mg/l may indicate pollution.

Water quality may be approximated in the field by using a specific-conductance meter and a thermometer if sufficient laboratory data are available for correlation. An error of 10 to 20 percent will still give reasonable results except to users who need more accurate data. Figure 15 gives the cumulative percentage of specific-conductance values for laboratory and field determinations made in the Bowling Green area. By comparing a field determination of the specific conductance of ground water to Figure 16, the total hardness and dissolved solids may be estimated. Values plotting to the left of the general trend are from water of the sodium chloride type. Sulfate occurs in excessive amounts in some wells and is generally associated with hydrogen sulfide. Figure 17 shows the cumulative frequency of hardness, sulfate, chloride, and dissolved solids, and indicates the range for each one.

E . Environmental Science Services Administration . Environmental Data Service

U.S. DEPARTMENT OF COMMERCE
C. R. Smith, Secretary

ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
Robert M. White, Administrator

ENVIRONMENTAL DATA SERVICE
Woodrow C. Jacobs, Director

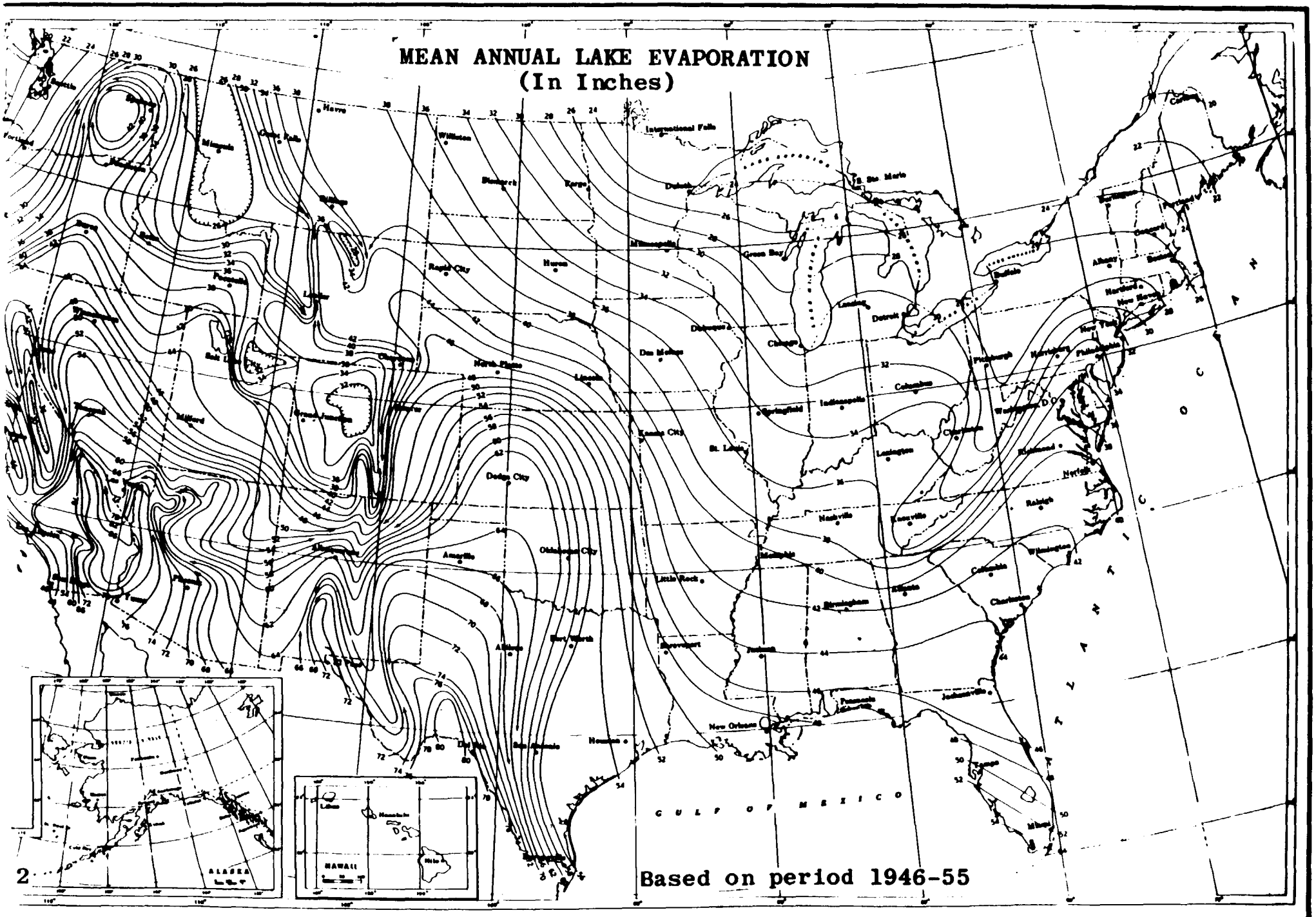
JUNE 1968

REPRINTED BY THE

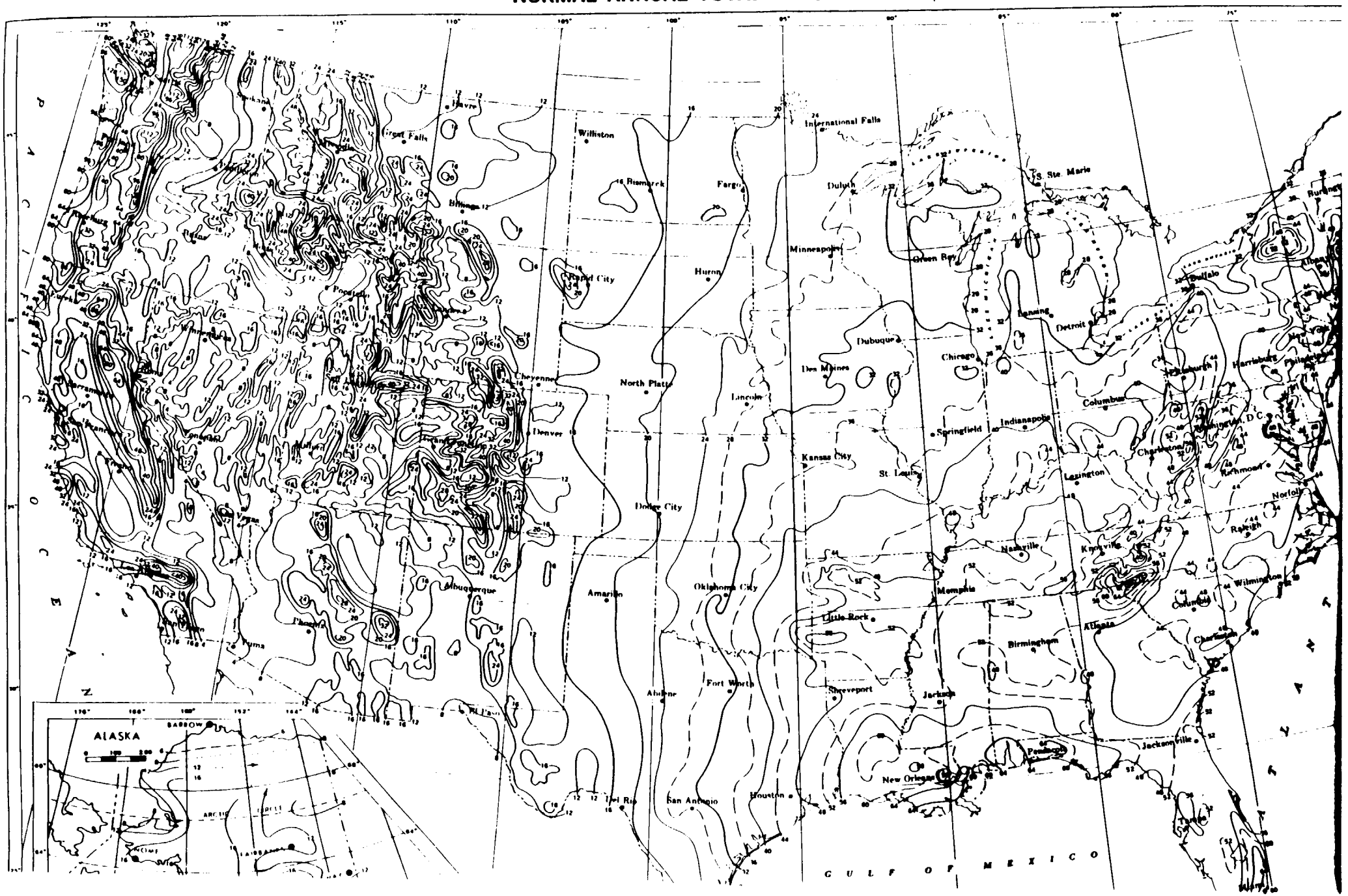
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

1983

EVAPORATION



NORMAL ANNUAL TOTAL PRECIPITATION (Inches)



DEPARTMENT OF COMMERCE
Hughes, Secretary

WEATHER BUREAU
F. W. Reichelderfer, Chief

TECHNICAL PAPER NO. 40

RAINFALL FREQUENCY ATLAS OF THE UNITED STATES

for Durations from 30 Minutes to 24 Hours and Return Periods from 1 to 100 Years

Prepared by
DAVID M. HERSHFIELD
Cooperative Studies Section, Hydrologic Services Division
for
Engineering Division, Soil Conservation Service
U.S. Department of Agriculture

PRICE LIST: RAINFALL FREQUENCY ATLASES — October 1985

The atlases described below may be ordered on one reel of 35mm microfilm at $12.50, or as individual paper pages at $2 per page, $4 service and handling charge per order. (Prices subject to change without notice.) Call to confirm current price.

National Climatic Data Center
Federal Building
Asheville, NC 28801-2696
704 CLI-MATE or 704-259-0682
Telex 6502643731

TP-40: Rainfall Frequency Atlas of the US - Weather Bureau Technical Paper No. 40 (Washington, DC: GPO, 1961) 14x21 ins, paper cover, 61 pages. (Superseded in part by two publications listed below.)

Presents 49 US rainfall frequency maps for selected durations from 30 minutes to 24 hours and return periods from 1 to 100 years. OUT-OF-PRINT, but a 8 1/2x14 in. reduced photocopy priced at $15 is available from the NCDC address above. Make payment to "Commerce-NOAA-NCDC".

HYDRO-35: Five- to 60-Minute Precipitation Frequency for the Eastern and Central US - NOAA Technical Memorandum NWS HYDRO-35 (Silver Spring, MD: NWS, 1977) 8 1/2x11 ins, cardstock cover, 36 pages. (Supersedes TP-40 above for the eastern 2/3 of the US for durations of 1 hr. and less).

Presents 6 US rainfall frequency maps for durations of 5, 15 and 60 minutes at return periods of 2 and 100 years. Equations are given to derive 10- and 30-min values between 2 and 100 years.

Order from: National Technical Info. Svc.
5285 Port Royal Rd.
Springfield, VA 22161
Order Desk Phone: 703-487-4650

Order No : PB 272-112
Prices: Paper $8.50
Microfiche $4.50

NOAA Atlas 2: Precipitation Frequency Atlas of the Western US (Washington, DC: GPO, 1973) 16x22 ins, cardstock cover, 11 Vols (Supersedes TP-40 above for the 11 western states) OUT OF PRINT.

This atlas contains maps for the 6- and 24-hour durations for return periods of 2, 5, 10, 25, 50, and 100 years. All maps are prepared on the same 1:2,000,000 scale.

Vol.	State	Pages	Photocopy Price
I	Montana	34	$ 68.00
II	Wyoming	34	$ 68.00
III	Colorado	47	$ 94.00
IV	New Mexico	34	$ 68.00
V	Idaho	35	$ 70.00
VI	Utah	46	$ 92.00
VII	Nevada	35	$ 70.00
VIII	Arizona	33	$ 66.00
IX	Washington	35	$ 70.00
X	Oregon	35	$ 70.00
XI	California	48	$ 96.00

(Note: Topographic contours and city names not always legible on microprints of NOAA Atlas 2. Blank, numbered pages are not reproduced, resulting in apparent missing pages, but no data pages are missing.)

$4 SERVICE AND HANDLING CHARGE PER ORDER.

PREFACE

This publication is intended as a convenient summary of empirical relationships, working guides, and maps, useful in practical problems requiring rainfall frequency data. It is an outgrowth of several previous Weather Bureau publications on this subject prepared under the direction of the author and contains an expansion and generalization of the ideas and results in earlier papers. This work has been supported and financed by the Soil Conservation Service, Department of Agriculture, to provide material for use in developing planning and design criteria for the Watershed Protection and Flood Prevention program (P.L. 566, 83d Congress and as amended).

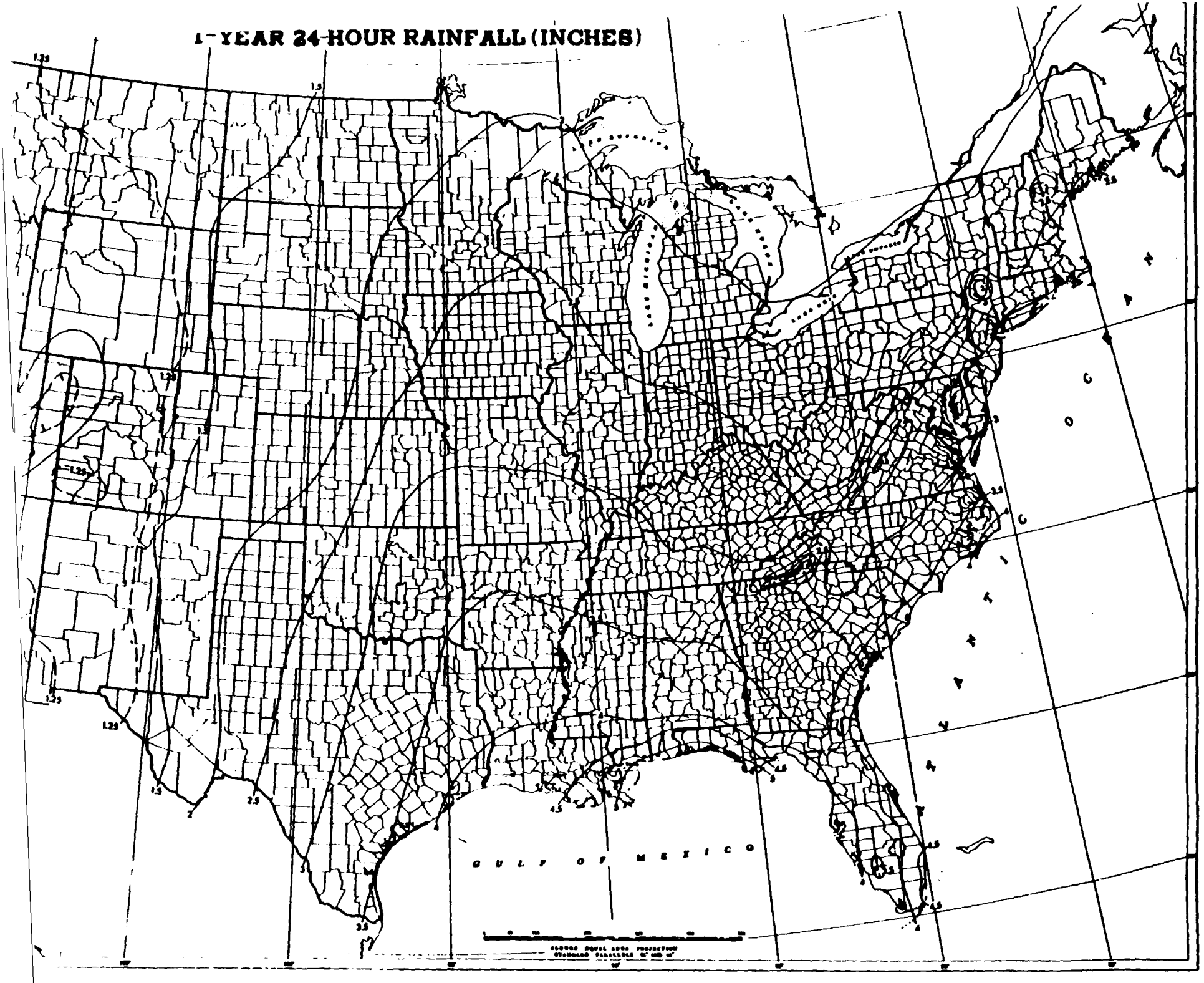
The paper is divided into two parts. The first part presents the rainfall analyses. Included are measures of the quality of the various relationships, comparisons with previous works of a similar nature, numerical examples, discussions of the limitations of the results, transformation from point to areal frequency, and seasonal variation. The second part presents 40 rainfall frequency maps based on a comprehensive and integrated collection of up-to-date statistics, several related maps, and seasonal variation diagrams. The rainfall frequency (isopluvial) maps are for selected durations from 30 minutes to 24 hours and return periods from 1 to 100 years.

This study was prepared in the Cooperative Studies Section (Joseph L. H. Paulhus, Chief) of Hydrologic Services Division (William E. Hiatt, Chief). Coordination with the Soil Conservation Service, Department of Agriculture, was maintained through Harold O. Ogrosky, Chief, Hydrology Branch, Engineering Division. Assistance in the study was received from several people. In particular, the author wishes to acknowledge the help of William E. Miller who programmed the frequency and duration functions and supervised the processing of all the data; Normalee S. Foat who supervised the collection of the basic data; Howard Thompson who prepared the maps for analysis; Walter T. Wilson, a former colleague, who was associated with the development of a large portion of the material presented here; Max A. Kohler, A. L. Shands, and Leonard L. Weiss, of the Weather Bureau, and V. Mockus and R. G. Andrews, of the Soil Conservation Service, who reviewed the manuscript and made many helpful suggestions. Carroll W. Gardiner performed the drafting.

CONTENTS

	Page
PREFACE	ii
INTRODUCTION	1
Historical review	1
General approach	1
PART I: ANALYSES	1
Basic data	1
Duration analysis	2
Frequency analysis	2
Isopluvial maps	4
Guides for estimating durations and/or return periods not presented on the maps	5
Comparisons with previous rainfall frequency studies	6
Probability considerations	6
Probable maximum precipitation (PMP)	6
Area-depth relationships	7
Seasonal variation	7
References	7
List of tables	
1. Sources of point rainfall data	1
2. Empirical factors for converting partial-duration series to annual series	3
3. Average relationship between 30-minute rainfall and shorter duration rainfall for the same return period	5
List of illustrations	
Figure 1.—Relation between 2-year 60-minute rainfall and 2-year 6-hour rainfall; relation between 2-year 1440-minute rainfall and 2-year observational-day rainfall	1
Figure 2.—Rainfall depth-duration diagram	2
Figure 3.—Relation between observed 2-year 2-hour rainfall and 2-year 2-hour rainfall computed from duration diagram	2
Figure 4.—Relation between observed 2-year 6-hour rainfall and 2-year 6-hour rainfall computed from duration diagram	2
Figure 5.—Relation between 2-year 30-minute rainfall and 2-year 60-minute rainfall	2
Figure 6.—Relation between partial-duration and annual series	2
Figure 7.—Rainfall depth versus return period	3
Figure 8.—Distribution of 1-hour stations	3
Figure 9.—Distribution of 24-hour stations	4
Figure 10.—Grid density used to construct additional maps	5
Figure 11.—Relation between means from 50-year and 10-year records (24-hour duration)	6
Figure 12.—Example of internal consistency check	6
Figure 13.—Example of extrapolating to long return periods	6
Figure 14.—Relationship between design return period, T years, design period, T_n, and probability of not being exceeded in T_n years	6
Figure 15.—Area-depth curves	6
PART II: CHARTS	
1.—1-year 30-minute rainfall	9
2.—2-year 30-minute rainfall	11
3.—5-year 30-minute rainfall	13
4.—10-year 30-minute rainfall	15
5.—25-year 30-minute rainfall	17
6.—50-year 30-minute rainfall	19
7.—100-year 30-minute rainfall	21
8.—1-year 1-hour rainfall	23

	Page
PART II: CHARTS—Continued	
9.—2-year 1-hour rainfall	25
10.—5-year 1-hour rainfall	27
11.—10-year 1-hour rainfall	29
12.—25-year 1-hour rainfall	31
13.—50-year 1-hour rainfall	33
14.—100-year 1-hour rainfall	35
15.—1-year 2-hour rainfall	37
16.—2-year 2-hour rainfall	39
17.—5-year 2-hour rainfall	41
18.—10-year 2-hour rainfall	43
19.—25-year 2-hour rainfall	45
20.—50-year 2-hour rainfall	47
21.—100-year 2-hour rainfall	49
22.—1-year 3-hour rainfall	51
23.—2-year 3-hour rainfall	53
24.—5-year 3-hour rainfall	55
25.—10-year 3-hour rainfall	57
26.—25-year 3-hour rainfall	59
27.—50-year 3-hour rainfall	61
28.—100-year 3-hour rainfall	63
29.—1-year 6-hour rainfall	65
30.—2-year 6-hour rainfall	67
31.—5-year 6-hour rainfall	69
32.—10-year 6-hour rainfall	71
33.—25-year 6-hour rainfall	73
34.—50-year 6-hour rainfall	75
35.—100-year 6-hour rainfall	77
36.—1-year 12-hour rainfall	79
37.—2-year 12-hour rainfall	81
38.—5-year 12-hour rainfall	83
39.—10-year 12-hour rainfall	85
40.—25-year 12-hour rainfall	87
41.—50-year 12-hour rainfall	89
42.—100-year 12-hour rainfall	91
43.—1-year 24-hour rainfall	93
44.—2-year 24-hour rainfall	95
45.—5-year 24-hour rainfall	97
46.—10-year 24-hour rainfall	99
47.—25-year 24-hour rainfall	101
48.—50-year 24-hour rainfall	103
49.—100-year 24-hour rainfall	105
50.—Probable maximum 6-hour precipitation for 10 square miles	107
51.—Ratio of probable maximum 6-hour precipitation for 10 square miles to 100-year 6-hour rainfall	109
52.—Seasonal probability of intense rainfall, 1-hour duration	111
53.—Seasonal probability of intense rainfall, 6-hour duration	113
54.—Seasonal probability of intense rainfall, 24-hour duration	115


1-YEAR 24-HOUR RAINFALL (INCHES)
GULF OF MEXICO

AGRICULTURE AND URBAN NONPOINT SOURCE POLLUTION IMPACTS ON KARST AQUIFERS IN THE PENNYROYAL KARST REGION OF KENTUCKY

PART I

HYDROGEOLOGY OF THE LOST RIVER KARST GROUNDWATER BASIN, WARREN COUNTY, KENTUCKY

by

Nicholas C. Crawford, Christopher G. Groves,
Thomas P. Feeney, and Benjamin J. Keller
Center for Cave and Karst Studies
Department of Geography and Geology
Western Kentucky University
Bowling Green, Kentucky

September 1987

Prepared for

Kentucky Natural Resources and Environmental Protection Cabinet Division of Water

and

Barren River Area Development District

INTRODUCTION TO THE LOST RIVER KARST GROUNDWATER BASIN

The Lost River Karst Groundwater Basin in Warren County was selected for this investigation of agriculture and urban nonpoint source pollution impacts on karst aquifers because of its central location within the Pennyroyal Plain of Kentucky (Figures 5 and 6). The Pennyroyal Plain (Sauer, 1927) is a classic karst landscape and known worldwide for its numerous sinkholes, large springs, and long caves. Mammoth Cave, the world's longest, is located only 36 kilometers (20 miles) northeast of the Lost River Basin.

Warren County is one of the leading agricultural counties in Kentucky. It ranks in the top ten counties in both soybean and corn production. It also ranks fifth in wheat, second in alfalfa, and third in hay production. It ranks first in the state in total cattle production, first in beef cattle and nineteenth in dairy cattle. It also ranks second in swine production. Some of the best agricultural land in the county is drained by the subsurface Lost River. Consequently it was an excellent site for an investigation of agriculture nonpoint source pollution impacts on karst aquifers.

Bowling Green, with a population of approximately 50,000, is drained almost entirely by cave streams and is a focal point for the convergence of groundwater flowing beneath the sinkhole plain of Warren County. Almost all drainage from the sinkhole plain for about 25 kilometers (15.5 miles) northeast (Quinlan and Rowe, 1977) and 21 kilometers (13 miles) south (Crawford and Beeler, 1980 and Crawford, 1985a) issues from Graham Springs and the Lost River Rise to flow into the Barren River at Bowling Green. **Because of its location entirely on a sinkhole plain, Bowling Green has probably had more problems associated with karst drainage than any other city in the United States** (see Appendices 2 and 3). Almost all storm water runoff in Bowling Green flows into the karst aquifer by way of sinkhole drains, cave entrances, or drainage wells (Crawford and Groves, 1984). With most of the runoff flowing into the Lost River, the basin provided an excellent site for this investigation of the impacts of urban storm water runoff on karst aquifers. Also, the rapid growth of subdivisions in the Lost River Groundwater Basin permitted the investigation of septic tank effluent impacts on karst aquifers. The effluent from numerous septic tanks associated with suburban development was treated as nonpoint source pollution in this investigation.

The Lost River Groundwater Basin includes most of Warren County south of Bowling Green. Dye traces by George (1974), and Crawford and Beeler (1980) and the numerous traces performed for this investigation revealed that the Lost River begins in uplands about 16 kilometers (10 miles) south of the city as several small streams sink and flow into the underlying St. Louis Limestone (Figure 7). These subsurface streams unite to become the Lost River which flows north under Bowling Green to a resurgence at the Lost River Rise. It then flows as a surface stream about 1.6 kilometers (1 mile) to the Barren River.

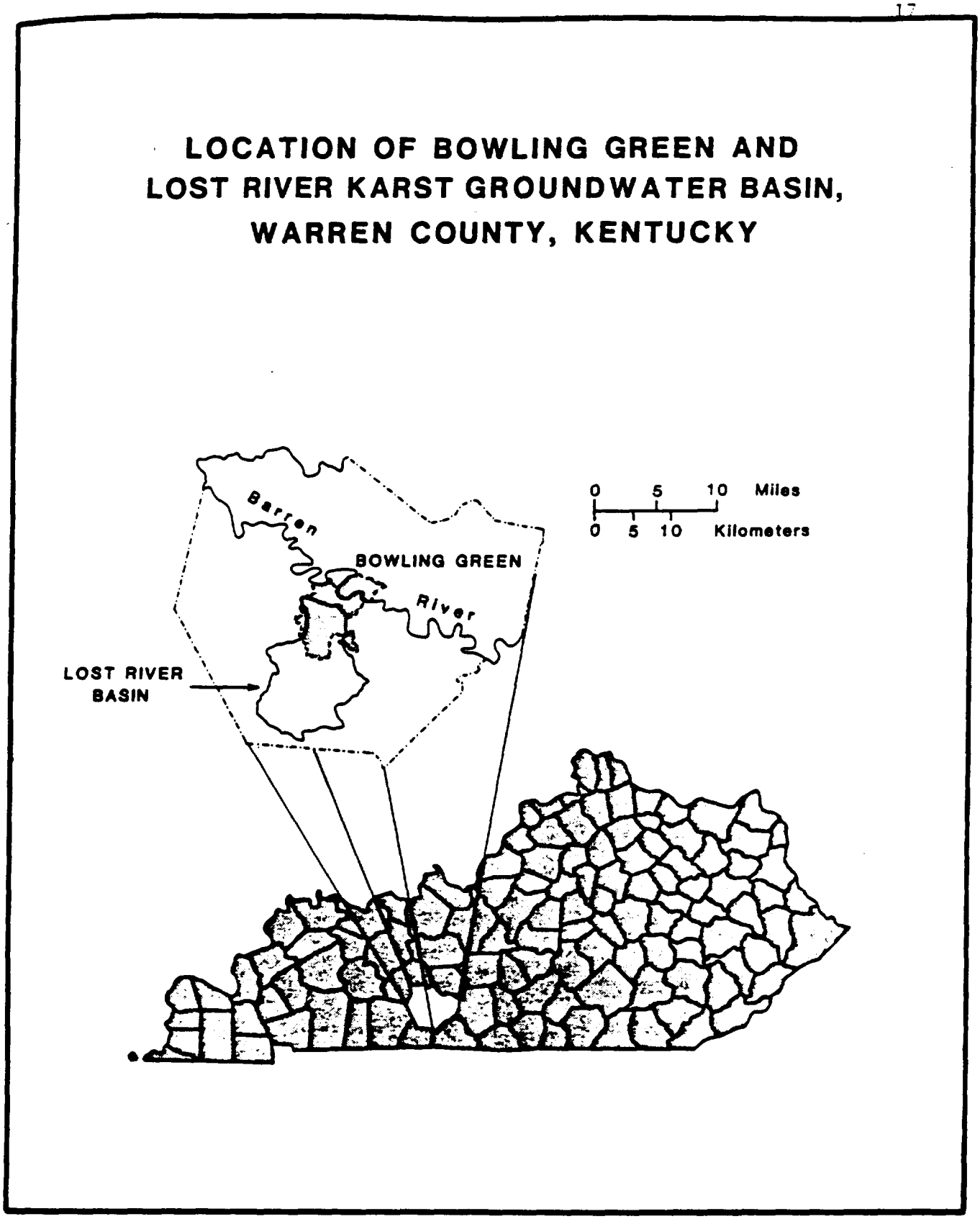


FIGURE 5. Location of the Lost River Groundwater Basin, Warren County, Kentucky.

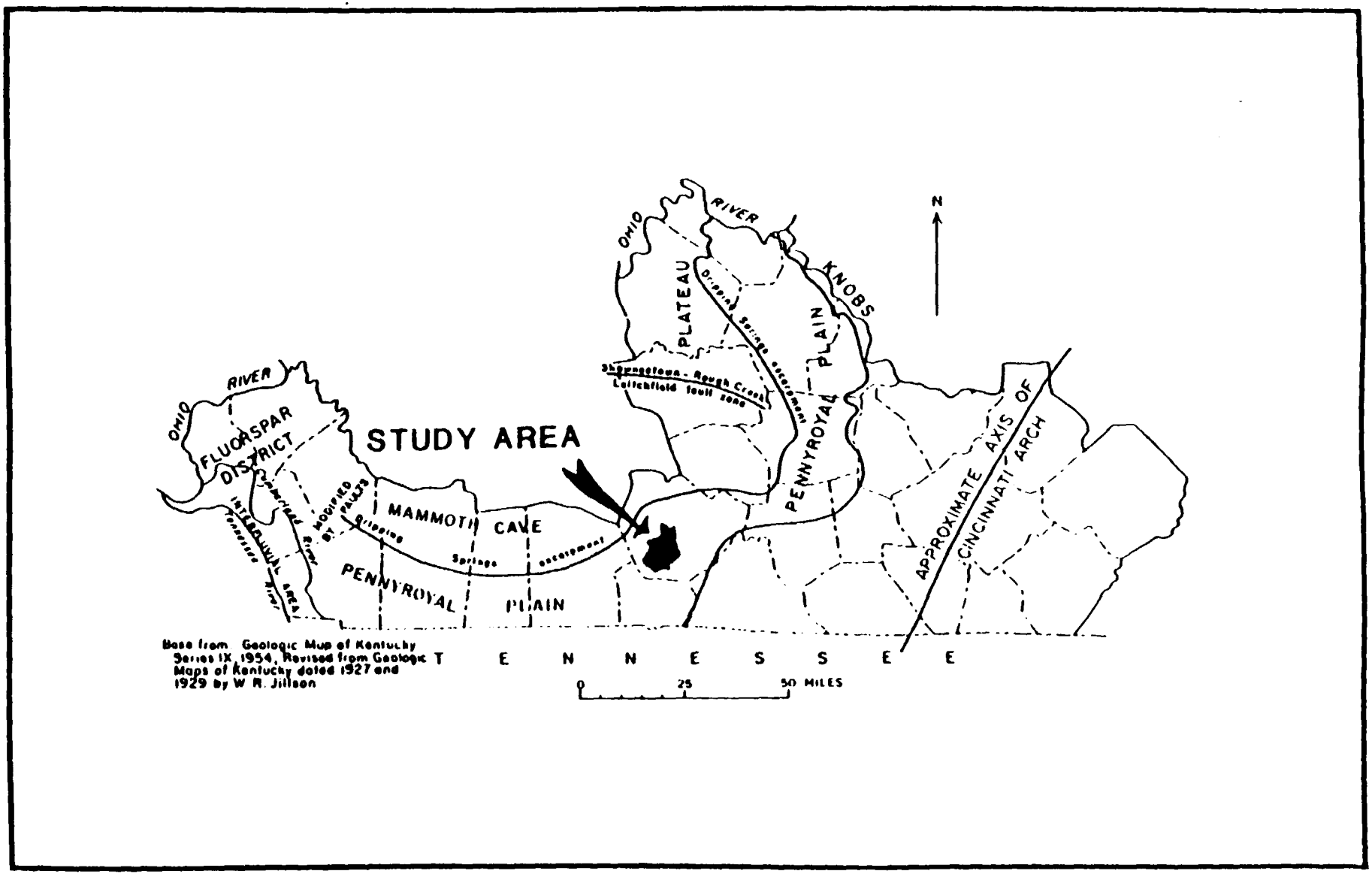


FIGURE 6. Location of the study area with respect to regional physiographic setting.

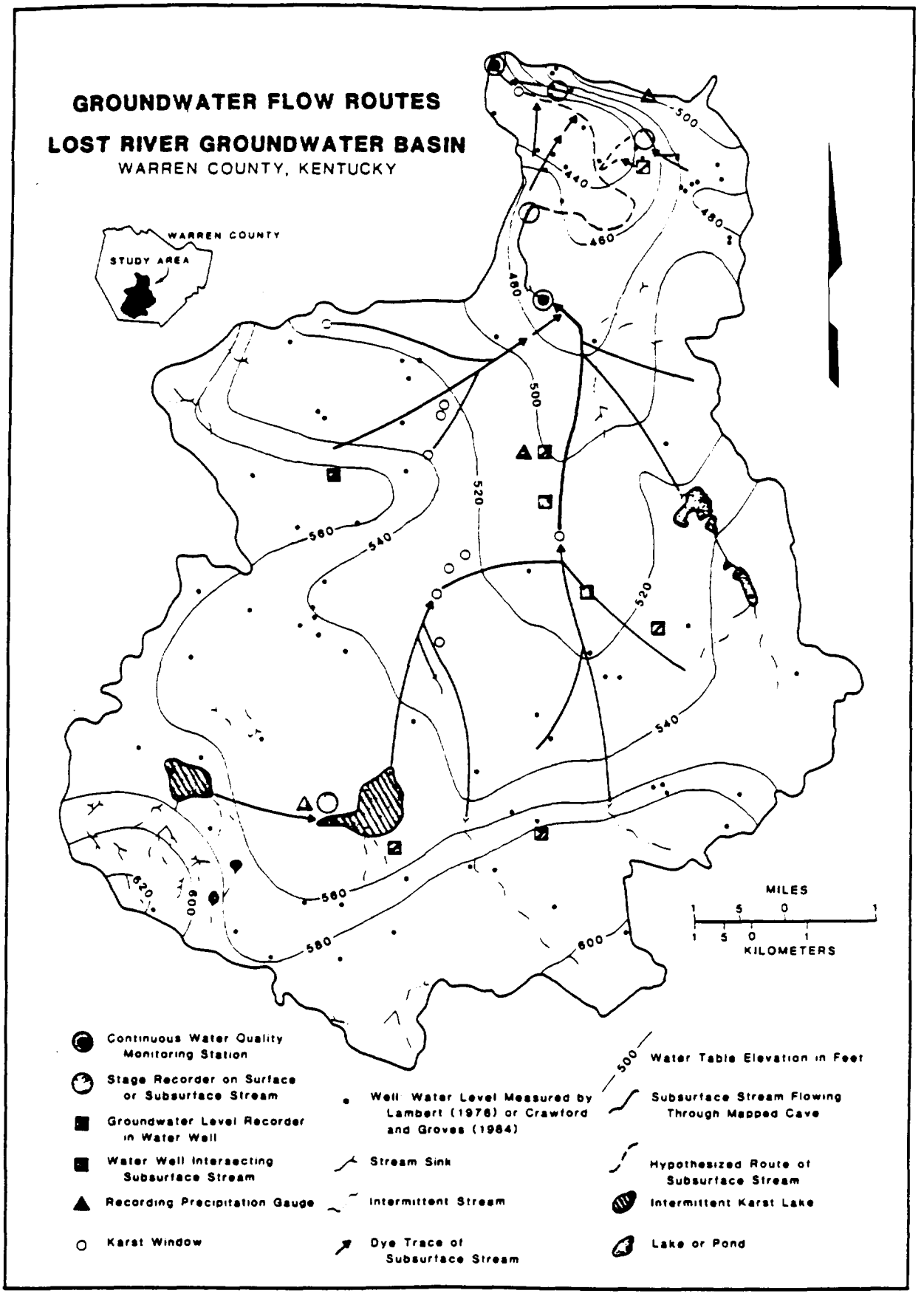


FIGURE 7. Groundwater flow routes of the Lost River Groundwater Basin.

Near its headwaters and hydrologically connected with the Lost River are two intermittent karst lakes, each over 1.6 kilometers (1 mile) in diameter. The Lost River flows across the bottom of several karst windows, the largest being located at the southern edge of Bowling Green where the stream rises at the Lost River Blue Hole, flows across the Lost River Karst Window and into the mouth of Lost River Cave (Figure 8). From the Lost River Karst Window the river travels through large cave passages under the southwest portion of the city to the Lost River Rise (Figures 9, 10, 11, and 12).

The Lost River drainage system has formed in the Mississippian Ste. Genevieve and St. Louis Limestones in the vicinity of two chert confining layers (Figure 13). The stream begins in the vicinity of Woodburn south of Bowling Green as surface streams invade the subsurface upon breaching the Lost River Chert Bed. It then flows north perched primarily on the Corydon Member of the St. Louis Limestone (Woodson, 1981 and 1983) and in places the Lost River Chert Bed (Elrod, 1899). Lost River follows the strike in its headwaters and then flows downdip in the downstream sections (Figure 14).

The Lost River Chert Bed is named for the famous Lost River of southern Indiana. It appears that this prominent 3 to 6 meter (10 to 20 feet) zone of bedded, light gray, fossiliferous chert extends from southern Indiana to the Bowling Green area and probably as far south as the Mississippian sinkhole plain of the Highland Rim of Tennessee. It is somewhat ironic that the Lost River Chert (of southern Indiana) plays such an important stratigraphic role in the development of the Lost River Cave system of southern Kentucky. The Lost River is perched upon the Lost River Chert as it flows through the accessible portion of Lost River Cave under Bowling Green. An excellent outcrop occurs on the floor of the cave just inside the entrance.

It appears that after breaching the Lost River Chert and invading the subsurface, the Lost River flows downdip perched upon the Corydon "Ball Chert" Member of the upper St. Louis Limestone. Much of the cave has formed in approximately 10 meters (33 feet) of St. Louis Limestone sandwiched between the two chert layers. The two large intermittent karst lakes which occur near the headwaters of the Lost River system are located above the Lost River. During times when the discharge exceeds the capacity of the cave, water rises from the cave system to fill the lakes. During periods of low discharge water flows from the lakes into the underlying cave system and the lakes dry up. The cave appears to be located on the north, downdip side of the lakes where several estavelles are evident. Water has been observed both flowing out of and into these estavelles. The dye trace from Chaney Lake to the spring which feeds Rich Pond was greatly facilitated by injecting dye on a rare occasion when water was observed flowing into an estavelle at the edge of Chaney Lake (Figures 15 and 16). The stream under the lakes is believed to be perched upon the Corydon Chert. The Lost River Chert outcrops along the northern or downdip side of the lakes. The lakes appear to be expanding in a downdip direction due to a kind of subsurface lateral planation as the cave keeps undercutting the Lost River Chert Bed in a downdip direction. Blocks of the bedded chert as large as 3 meters (10 feet) in

diameter have been displaced by undercutting on the downdip side of Chaney Lake.

At the Church Karst Window the Lost River is flowing upon the top of the Corydon Chert. The Lost River Chert has weathered into the fertile soil which covers the sinkhole plain at the top of the sink. In this area the sinkhole plain is almost flat for several kilometers (miles) and corresponds with the weathered Lost River Chert.

The cave passage upstream from the Church Window has formed along a joint swarm. The joint swarm is evident on topographic maps and air photos as a prominent lineament. Exploration of the cave upstream from the Church Window revealed that the stream divides and that almost half of the water takes a different route to the Blue Hole Rise of the Lost River, located in the Lost River Uvala along the southern edge of Bowling Green.

The Lost River Uvala has formed by the collapse of the roof of Lost River Cave and extends in virtually a straight line for approximately 1.5 kilometers (0.8 miles). It is probable that the cave formed along a joint swarm very similar to that observed at the Church Window since the orientation is virtually the same. Ths Lost River rises at the Blue Hole and flows about 122 meters (400 feet) into the massive entrance of Lost River Cave. The stream is perched upon the Lost River Chert as it flows through the accessible portion of the cave. This means that somewhere between the Church Window and the entrance to Lost River Cave the Lost River jumps up section to flow on top of the Lost River Chert.

An underwater survey of the Lost River Rise revealed that water flows up from a cave passage 2-3 meters (6-10 feet) high and over 30 meters (100 feet) wide located 12 meters (40 feet) below the surface of the spring (Maegerlein and Dillon, 1980). A comparison between the stratigraphy and the water table indicate that the Lost River breaches the Lost River Chert once again somewhere between the farthest point of exploration in the cave, a roof collapse near the Alexander Entrance, and the Rise. At every location between the headwaters and the Rise where the Lost River is visible, it is flowing upon either the Lost River Chert or the Corydon Chert. It is interesting that structure and stratigraphy have influenced ground water flow and thus cavern development to a much greater extent in the Bowlng Green area than in the Mammoth Cave area only 40 kilometers (25 miles) to the northeast.

Reference No. 16

a product of

J. L. DARLING CORPORATION

TACOMA, WASHINGTON 98421 U.S.A.

"Rite in the Rain"
WEATHERPROOF

LEVEL

NOTEBOOK NO. 311

F4-1191

TDD F4-8806-11

Colt Industries Holley Carburetor Plant 2 7

Bowling Green, Kentucky

John Jenkins - (Project Manager)

LOGBOOK REQUIREMENTS
REVISED - NOVEMBER 29, 1988

NOTE: ALL LANGUAGE SHOULD BE FACTUAL AND OBJECTIVE

1. ✓ Record on front cover of the Logbook: TDD No., Site Name, Site Location, Project Manager
2. ✓ All entries are made using ink. Draw a single line though errors. Initial and date corrections.
3. ✓ Statement of Work Plan, Study Plan, and Safety Plan discussion and distribution to field team with team member signatures.
5. ✓ Sign and date each page. Project Manager is to review and sign off on each logbook daily.
6. ✓ Document all calibration and pre-operational checks of equipment. Provide serial numbers of equipment used onsite.
7. ✓ Provide reference to Sampling Field Sheets for detailed sampling information.
8. ✓ Describe sampling locations in detail and document all changes from project planning documents.
9. ✓ Provide a site sketch with sample locations and photo locations.
10. ✓ Maintain photo log by completing the stamped information at the end of the logbook.
11. ✓ If no site representative is on hand to accept the receipt for samples an entry to that effect must be placed in the logbook.
12. ✓ Record I.D. numbers of COC and receipt for sample forms used. Also record numbers of destroyed documents.
13. ✓ Complete SMO information in the space provided.

The undersigned have read & understand the work plan, study plan, and site safety plan for this investigation in addition to this project's scope and objectives

Ron Young Ron Young
Bob Telford B Telford
John Jenkins John Jenkins

All times logged into this record are Eastern standard time

Field sheets are maintained for each sample collected, and these field sheets are an extension of this logbook. Field sheets provide provide detailed sampling information

01

10:00 Ron Young and I drove to the site and to the meeting place. (Photos 7 & 5) Meanwhile Bob Tolford went to the tax acessor's office and obtained an aerial photograph of the facility.

John Doe 1/10/89

04

2:00 PM Met with Colt and Holley representatives

Individuals Present at the meeting are listed as follows:

Jerry Fondren - Holley Carburetor

Ted Wells - Environmental Engineer, Holley Carburetor

Richard Manning - Manager (Environmental Health) Colt Industries Inc.

Mark Madewitz - Colt Industries Attorney

Mike Ander - Dames and Moore

Jack Watkins - Kentucky Nat. Resources + Environment Protection

Scott Harris " " " " "

" "

Greg Schunk - NIUS

1/12/89

05

John Jeffries 1/10/89

Mike Ander of Dames and Moore went over data that they collected on their last sampling

I showed them a copy of our study plan and identified all proposed sampling locations

I confirmed (for Mark Manewitz) that we would not be sampling (Augering) in the landfill.

Greg Schenk explained to them the difference between a PA, PAR, SSI and LSI.

I talked with Charlie Stevens (EPA) on the phone (Scott Gardner was not available) and got permission to give the Colt and Holley representatives a copy of our study plan.

They requested the PA, PAR and [illegible] Notification of the site, I told them I would clear it w/ Scott Gardner + if ok would mail Richard Manning one. End of week

06

9:00 Arrived at the Colt Holley plant #7 to collect surface soil samples

3:20 Bob Telford and John Jenkins mark sampling locations w/ flags

3:25 Collected Background surface soil sample CH-SS-01

3:35 Completed sampling and duplicates of CH-SS-01

3:40 went to landfill site + finished placing flags at sampling locations - added surface soil sample CH-SS-04 to samples to be collected

3:53 Ron Young present for ice

John Jeffries 1/10/89

07

4:00 Begins to sample CH-SS-02

4:15 Collected surface soil sample CH-SS-04

4:30 Returned to paper work station taped & labeled JARS

4:50 Left facility

John Jetto 11/10/89

1/11/89

8:30 AM Cold and wet - chance of Rain in the afternoon

Set up paperwork station and waited for Ted Wells of Holley to bring his bottles for duplicate samples

9:10 Augered to approximately 2 feet deep in background location CH-01 and collected sample CH-SB-01 at 9:20
We had auger refusal at ≈ 2 feet, so we had Augered to collect the sample.

JJ 1/11/89

9:40 After collecting sample CH-SB-01 we tried to auger deeper with the power auger, but limestone bedrock prevented our going deeper than 2'. No water sample will be collected from CH-01

9:45 Plugged hole & went to set up for onsite sampling

John Justice 1/11/89

9:59 Took HNU Background reading before starting onsite sampling. Background reading was 1 ppm at 10X setting. Calibration was done at the warehouse & readings can be found in equipment HNU log

Serial # 415139
Decal # 336438

John Justice 1/11/89

10:14 Started hole for CH-SB-03 + had auger refusal at ≈ 4'. Moved hole ≈ 2' south + met refusal at 4' again. Moved ≈ 5' South + drilled to ≈ 3' before hitting bedrock. Started another hole next to previous hole + augered ≈ 2' + then got hand auger to clean out hole and collect sample

10:24 Collected CH-SB-03 Beginning to rain hard

10:30 Ron Young left the site and called Greg Schank to advise us on sampling in the present weather conditions (rain). Greg advised that we pull out + be on stand by in case the weather breaks.

John Griffis 1/11/89

14

10:45 Loaded up equipment and returned to hotel.

12:00 Still raining - Ron Young and I shipped the blanks and spikes for Steve Vice's trip back for them.

9:30 PM I called Phil Blackwell and asked if we could rig some tarps for sampling in the rain. He said it would be ok.

John Griffis 1/11/89

15

1/12/89 Raining + cool ≈ 55° F
HNU Background is
reading 3 ppm

9:30 Arrived at site to set
up tarp for sampling.

9:53 began to hand Auger - No HNU Readings
above background.
to collect sample CH-SB-04. This
sample was moved approximately 12' east of
CH-SS-04 due to standing water in the area

9:58 Collected sample CH-SB-04
at 3½ feet deep at
saprolite / clay interface
very moist, but not
saturated completely

We gave Mr. Ted Wells
one unpreserved 40 ml
bottle cap for a SB-04 so. 1
sample because his original

16

bottle cap was dropped

10:10 Plugged hole for CH-SB-04
+ Cleaned up area.

CH-SB-04 was moved
approximately 12' east
of the location of CH-SS-04

10:30 Set up tarp and equipment
for CH-SB-02, We had
to Decon a handle for
the hand auger, I asked
Mr. Wells what the depth to
the bottom of the land fill
was, and he stated that it
went down to the limestone -
a depth of about 8' below
land surface.

1/12/89 9:7

11:10 Collected sample CH-SB-02 Auger Refusal at 4' - Broke thru limestone Rock and collected sample 4' to 5'

HNU Background reading was 5 ppm - No change in auger hole reading.

J. Griffin 1/12/89

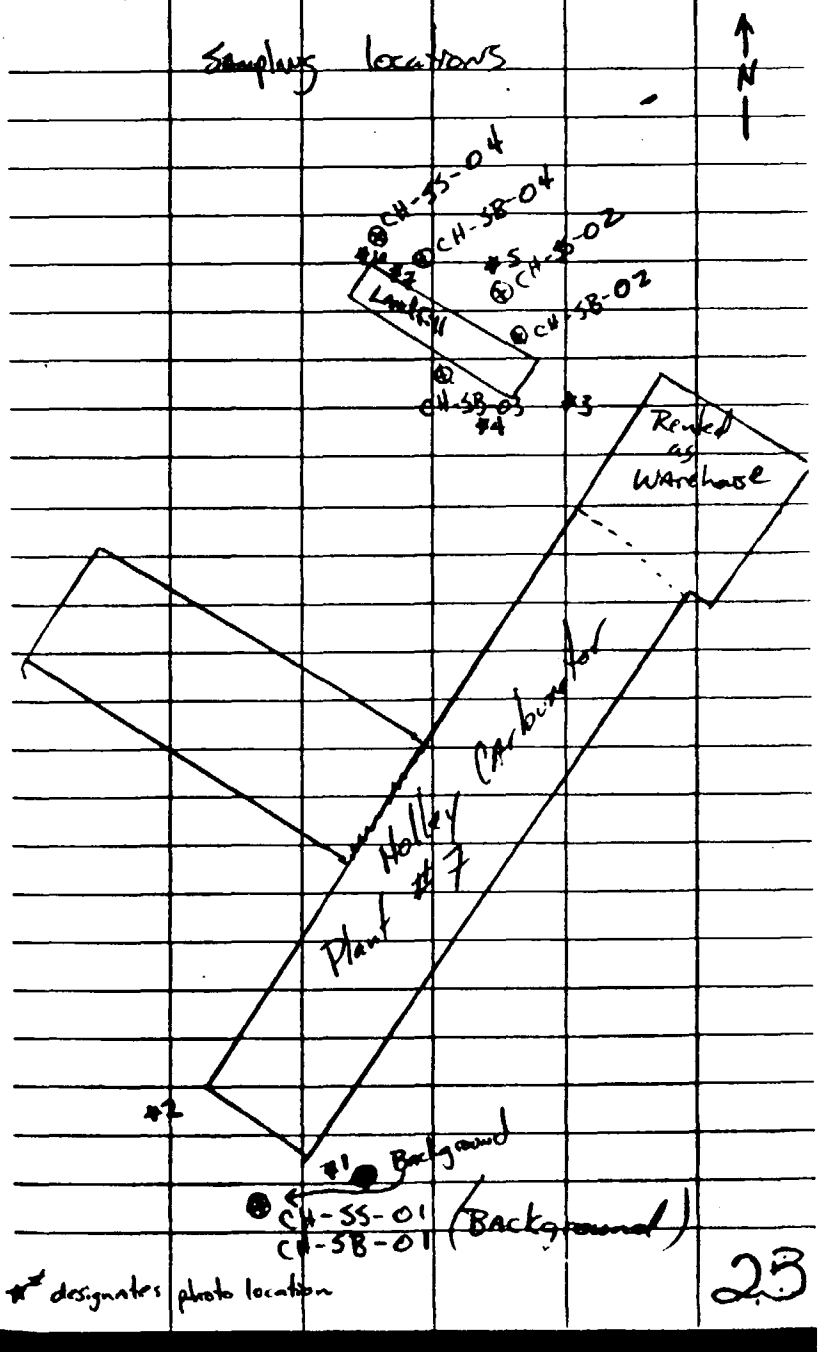
11:15 - Sketched facility while Ron and Bob loaded equipment.

11:20 - 11:55 - took photographs of the landfill and all sampling locations. Labeled photo locations on facility sketch.

12:04 - Met with Ted Wells & got him to sign for receipt for samples.
Receipt for Samples No. 4 2477

12:30 Bob Tolford and I washed equipment, while Ron Young processed samples for shipment.

John Gatin 4/12/89


Sampling locations
N
CH-SS-04
CH-SB-04
#4
#2
#5
CH-SS-02
CH-SB-02
Landfill
CH-SB-03
#4
#3
Rented as Warehouse
Carburetor
Holley
#1
Plant
#2
#1 Background
CH-SS-01
CH-SB-01
(Background)
* designates photo location

Case No. 11207

Low Concentration yes/no (yes circled)

Organics

No.	Media	Lab	Airbill No
4	Soil (circled) / Water	Southwest Labs of Oklahoma	9048020472

Inorganics

No.	Media	Lab	Airbill No
1/12/89 9	Soil (circled) / Water	Laucks Testing Labs Inc. Seattle	177508085(6)

TDD # F4-8806-11
Date 1/12/89 By Whom: J. Jenkins
Time: 11:55 # keyed to map: 1
Location: South end of facility facing south

Picture of: Background sample station CH-01

TDD # F4-8806-11
Date 1/12/89 By Whom: J. Jenkins
Time: 11:50 # keyed to map: 2
Location: South end of facility facing south

Picture of: War Memorial Boys school

TDD # F4-8806-11
Date 1/12/89 By Whom: J. Jenkins
Time: 11:55 # keyed to map: 3
Location: East end of landfill

Picture of: Landfill (facing West)

TDD # F4-8806-11
Date 1/12/89 By Whom J. Jenkins
Time 11:32 # keyed to map 4
Location Southeast side of Landfill

Picture of station CH-SB-03

TDD # F4-8806-11
Date 1/12/89 By Whom J. Jenkins
Time 11:39 # keyed to map 5
Location South side of Landfill

Picture of Sampling stations CH-SS-02 (foreground)
and station CH-SB-02 (Background)

TDD # F4-8806-11
Date 1/12/89 By Whom J. Jenkins
Time 11:25 # keyed to map 7
Location Northwest corner of landfill

Picture of: Sampling stations CH-SB-04 (right)
and CH-SS-04 (left)

TDD # F4-8806-11
Date 1/12/89 By Whom J. Jenkins
Time 11:25 # keyed to map 7
Location Northwest corner of landfill

Picture of: Sampling stations CH-SB-04 (right)
and CH-SS-04 (left)

TDD # F4-8806-11
Date 1/12/89 By Whom J. Jenkins
Time 11:22 # keyed to map 6
Location Northwest corner of landfill

Picture of: Landfill and facility buildings

TDD #
Date By Whom
Time # keyed to map
Location

Picture of

Reference No. 17

NUS CORPORATION AND SUBSIDIARIES — **TELECON NOTE**

CONTROL NO:	DATE:	TIME:
	3-1-88	1:30 pm

DISTRIBUTION:

Bowling Green Toxic Fumes/Lost River

BETWEEN:	OF:	PHONE:
John McGregor	Kentucky Fish & Wildlife Service	(502) 564-3400

AND: Belinda Brock 3-1-88

Belinda Brock, NUS Corporation

DISCUSSION:

Critical habitats -Threatened/Endangered Species in Warren County, Kentucky.

Kentucky Cave Shrimp would probably not be in Warren County, just the Mammouth Cave area in Edmondson County.

There are possibly Gray Bats in caves in Warren County. Federal mussels in the Barren River.

ACTION ITEMS:

ENDANGERED AND THREATENED SPECIES

U.S. FISH AND WILDLIFE SERVICE

REGION 4 - ATLANTA

CRITICAL HABITAT INDEX

Alabama - Etheostoma boschungi, "slackwater darter"
Peromyscus polionotus ammobates, "Alabama beach mouse"
Peromyscus polionotus trissyllepsis, "Perdido Key beach mouse"
Speoplatyrhinus poulsoni, "Alabama cavefish"

Arkansas - Percina pantherina, "leopard darter"

Florida - Ammospiza maritima mirabilis, "Cape Sable sparrow"
Ammospiza maritima nigrescens, "dusky seaside sparrow"
Crocodylus acutus, "American crocodile"
Peromyscus polionotus allophrys, "Choctawhatchee beach mouse"
Peromyscus polionotus trissyllepsis, "Perdido Key beach mouse"
Rostrhamus sociabilis plumbeus, "Everglade kite"
Trichechus manatus, "Florida manatee"

Georgia - Percina antesella, "amber darter"
Percina jenkinsi, "Conasauga logperch"

Kentucky - Myotis sodalis, "Inidana bat"
Palaemonias ganteri, "Kentucky cave shrimp"

Louisiana - No designations

Mississippi - Grus canadensis pulla, "Mississippi sandhill crane"

North Carolina - Hudsonia montana, "mountain golden heather"
Hybopsis monacha, "spotfin chub"
Menidia extensa, "Waccamaw silverside"

KENTUCKY - Critical Habitat

Myotis sodalis, "Indiana bat"

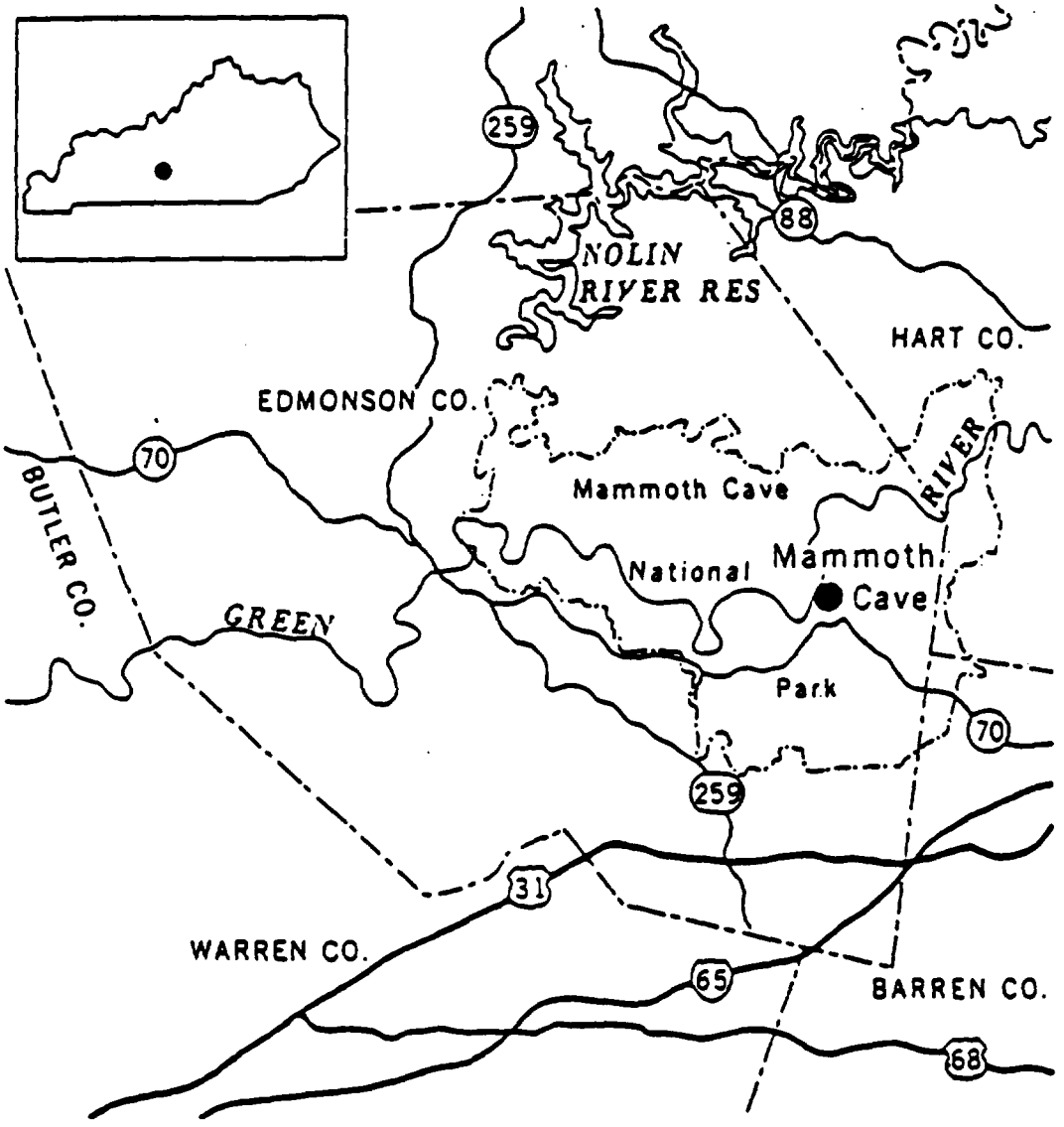
The following areas (exclusive of those existing man-made structures or settlements which are not necessary to the normal needs or survival of the species) are Critical Habitat for the Indiana bat (Myotis sodalis):

Bat Cave, Carter County; Coach Cave, Edmonson County.

KENTUCKY - Critical Habitat

Palaemonias ganteri, "Kentucky cave shrimp"

Edmonson County. The Roaring River passage of the Flint-Mammoth Cave System in Mammoth Cave National Park. Known constituent elements include a stream in a base level cave passage with abundant organic material and sediments consisting of coarse silt and very coarse to very fine sand.



Reference No. 20

NUS CORPORATIL — **TELECON NOTE**

CONTROL NO:	DATE:	TIME:
	December 3, 1987	1305

DISTRIBUTION:

BETWEEN:	OF:	PHONE:
Benjy Kinman	Fisheries Division Kentucky Department of Fish & Wildlife	(502) 564-4336

AND:

Eric Corbin, NUS Corporation

DISCUSSION:

Mr. Benjy Kinman of the Fisheries Divisions was contacted in an effort to determine if fishing, boating, and swimming was done on the Barren River near Bowling Green, Kentucky. Mr. Kinman stated that people definitely did fish the river for such species as rainbow trout, bass, crappie, sunfish and various other species of fish. He also stated that canoeing, the use of jonboats and swimming were also popular on the river. Many fish species are lost through the spillway of the Barren River Lake each year and rainbow trout are stocked at the bottom of the spillway.

Eric Corbin

ACTION ITEMS:

Reference No. II 21

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV - ATLANTA, GEORGIA

DATE: DEC 2 1988

SUBJECT: Inspection to Assess Compliance with Closure/Post Closure Requirements Report, Eaton Corporation
EPA I.D. No. KYD 098 950 306

FROM: Wayne Garfinkel, Chief
KY/TN Unit, WES

TO: Susan Diehl, Chief
North Unit, Site Assessment Branch

THRU: John Dickinson, Acting Chief
Waste Engineering Section

12-1-88

At the request of Mr. Scott Gardner, the RCRA Waste Engineering Section has reviewed the above referenced report. There is evidence that Eaton did not comply with the groundwater monitoring requirements of §265.91(a)(l)(i).

Recent changes in RCRA regulations have extended the post-closure care permit requirements for waste piles, surface impoundments, and land treatment units that clean closed under Part 265 closure standards. Under the new requirements, owners and operators of surface impoundments, landfills, waste piles, and land treatment units that certified closure after January 26, 1983, must have post closure care permits unless they can effectively demonstrate that their closure was equivalent to clean closure under 40 CFR §264.

Eaton Corporation certified closure of four surface impoundments in October of 1984. Therefore, RCRA will be requiring them to either submit a post closure application or request an equivalency determination in the near future.

The following are our comments and recommendations concerning the closure and potential sampling at the site. If you have any questions, please contact Jim Webster at ext. 3433.

1. Prior to installation of their Phase II wastewater treatment system Eaton discharged wastewater to a sinkhole under a NPDES permit. Under §261.4(a)(2) industrial wastewater discharges that are point source discharges subject to regulation under Section 402 of the Clean Water Act are excluded from being solid or hazardous waste. However, contaminated materials such as soils from such discharges might be addressed under CERCLA (see attached memo). Therefore, the old outfall should be sampled for the presence of metals.

2. Apparently, the EP toxicity test was used to analyze for the presence of metals in the soils underlaying the surface impoundments. The EPA now recommends the use of total constituent levels with clean closure since potential routes of exposure include dermal contact and ingestion. Consequently, we recommend that the undisturbed soil underlaying the old impoundments should be analyzed for total constituent levels of cadmium, chromium, cyanide, and lead.

3. As specified in §265.91(a)(1)(i), a groundwater monitoring system must be capable of yielding samples that represent background groundwater quality in the uppermost aquifer near the facility. Comparison of Eaton's groundwater data (page c-55 of the report) with a watertable map of the Lost River Karst aquifer prepared by Crawford (1985) (attached) suggests that Eaton might not have monitored the uppermost aquifer beneath the facility.

   The true watertable should lie 30 to 40 feet below the water levels given in the report. This conflicting data suggests that Eaton probably installed wells into a zone of perched water rather than the uppermost aquifer.

It would be useful to have analytical data for the groundwater beneath Eaton. However, collecting representative samples of groundwater and/or surface water at the site would be difficult since:

1. Eaton's monitoring system is no longer in place.

2. The uppermost aquifer beneath the facility is a karst aquifer, consequently, groundwater flow is largely confined to solutionally enlarged openings in the bedrock.

3. Eaton lies near the divide between two groundwater basins (see attached map). Consequently, groundwater beneath the facility may flow in opposite directions.

4. Perennial surface steams are virtually absent in the Lost River Groundwater Basin.

Attachment

REF. 22

Cutler-Hammer
roducts

Eaton Corporation
Power Control Division
2901 Industrial Drive
P.O. Box 90002
Bowling Green, Kentucky 42102-9002
502 782-1555

24 January 1990

Mitchell Cohen
N.U.S. Corporation

Panafax #404-938-7710

EATON

In response to your questions of 1/22/90:

1. When were the sludge ponds last used?

   My history goes back to September, 1980. The sludge ponds were not in use at that time. I do not have any information on their last usage.

2. How many cubic yards of material were removed from the sludge beds?

   State of Kentucky had authority over closure of sludge beds. All material removed during closure was submitted to State of Kentucky. Closure was deemed acceptable and complete by the State. Records regarding type, quantity, and final disposal are available through the State of Kentucky. To the best of my knowledge all records of closure of sludge beds have been sent to Corporate facilities in Cleveland.

3. How often are the four bunkers moved from the plant?

   A. F006 filter cake--removal occurs when bunker is full or between 75 to 85 days, whichever occurs first.

   B. Scrap wooden pallets--twice weekly.

   C. Scrap metal--removal varies from one to two weeks.

I hope this information meets your needs.

4. Small dumpster and fork lift carry F006 sludge cake from the filter press to the dumpster (bunker)

Roland McAbee, Mgr.
Manufacturing Services

pm

c: S. Fesko

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

EPA

I. IDENTIFICATION
01 STATE: KY | 02 SITE NUMBER: D098950306

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER				
EATON CORPORATION	2901 FITZGERALD INDUSTRIAL DRIVE				
03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
BOWLING GREEN	KY	42101	WARREN	114	
09 COORDINATES LATITUDE: 36 57 30.1	LONGITUDE: 086 28 47.0				

10 DIRECTIONS TO SITE (Starting from nearest public road)
FROM BOWLING GREEN, TAKE U.S. 31 W BY-PASS (NASHVILLE RD) SOUTH TO DISHMAN LANE. TURN RIGHT AND GO TO FIRST RIGHT, WHICH IS FITZGERALD INDUSTRIAL DRIVE. EATON CORPORATION IS 0.25 MILES ON LEFT.

III. RESPONSIBLE PARTIES

01 OWNER (If known)	02 STREET (Business, mailing, residential)			
EATON CORPORATION	1111 SUPERIOR AVE			
03 CITY	04 STATE	05 ZIP CODE	06 TELEPHONE NUMBER	
CLEVELAND	OH	44114	(216) 523-5000	
07 OPERATOR (If known and different from owner)	08 STREET (Business, mailing, residential)			
STEVE KAVANAUGH	2901 FITZGERALD INDUSTRIAL DRIVE			
09 CITY	10 STATE	11 ZIP CODE	12 TELEPHONE NUMBER	
BOWLING GREEN	KY	42101	(502) 782-1555	

13 TYPE OF OWNERSHIP (Check one)
☒ A. PRIVATE ☐ B. FEDERAL: _____ (Agency name) ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL
☐ F. OTHER: _____ (Specify) ☐ G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)
☐ A. RCRA 3001 DATE RECEIVED: ___/___/___ (MONTH DAY YEAR) ☐ B. UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED: ___/___/___ (MONTH DAY YEAR) ☒ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION
☒ YES DATE 12 / 11 / 89 (MONTH DAY YEAR) ☐ NO

BY (Check all that apply)
☐ A. EPA ☒ B. EPA CONTRACTOR ☐ C. STATE ☐ D. OTHER CONTRACTOR
☐ E. LOCAL HEALTH OFFICIAL ☐ F. OTHER: _____ (Specify)
CONTRACTOR NAME(S): NUS CORPORATION

02 SITE STATUS (Check one)
☒ A. ACTIVE ☐ B. INACTIVE ☐ C. UNKNOWN

03 YEARS OF OPERATION: 1965 (BEGINNING YEAR) | PRESENT (ENDING YEAR) ☐ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED
ELECTROPLATING WASTES, FOOG SLUDGES, WATER-BASED PAINTS, PAINT WASTES, USED LUBRICATING OIL, WASTE SOLVENTS

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION
THE FACILITY CLOSED FOUR SURFACE IMPOUNDMENTS THAT WERE USED TO SETTLE SOLIDS (FOOG SLUDGE) FROM WASTEWATER. CLOSURE WAS CERTIFIED BY THE STATE ON DECEMBER 11, 1984.

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents)
☐ A. HIGH (Inspection required promptly) ☒ B. MEDIUM (Inspection required) ☒ C. LOW (Inspect on time available basis) ☐ D. NONE (No further action needed, complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)			03 TELEPHONE NUMBER
				( )
04 PERSON RESPONSIBLE FOR ASSESSMENT	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NUMBER	08 DATE
MITCH COHEN		NUS CORP	(800) 888-7710	1 / 9 / 90 (MONTH DAY YEAR)

EPA FORM 2070-12 (7-81)

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

EPA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
KY	D098950306

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- [X] A SOLID
- [ ] B POWDER, FINES
- [X] C SLUDGE
- [ ] D OTHER (Specify)
- [ ] E SLURRY
- [X] F LIQUID
- [ ] G GAS

02 WASTE QUANTITY AT SITE
(Measures of waste quantities must be independent)

TONS _____
CUBIC YARDS @ 3500
NO OF DRUMS @ 1800

03 WASTE CHARACTERISTICS (Check all that apply)

- [X] A TOXIC
- [ ] B CORROSIVE
- [ ] C RADIOACTIVE
- [ ] D PERSISTENT
- [ ] E SOLUBLE
- [ ] F INFECTIOUS
- [ ] G FLAMMABLE
- [ ] H IGNITABLE
- [ ] I HIGHLY VOLATILE
- [ ] J EXPLOSIVE
- [ ] K REACTIVE
- [ ] L INCOMPATIBLE
- [ ] M NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE	@ 3500	CU YDS	DISPOSED OF AT CECOS ENVIRONMENTAL
OLW	OILY WASTE			ADD'L 1800 DRUMS OF
SOL	SOLVENTS			WASTEWATER TREATED IN
PSD	PESTICIDES			ONSITE TREATMENT PLANT
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
MES	Nickel		IMPOUNDMENT	79.6	PPM
MES	Chromium		IMPOUNDMENT	2.72	PPM
OCC	Cyanide		IMPOUNDMENT	0.32	PPM

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

INSPECTION TO ASSESS COMPLIANCE WITH CLOSURE/POST CLOSURE REQUIREMENTS AT EATON CORPORATION

PRELIMINARY ASSESSMENT - 3/19/84

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
KY	D096950306

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 [X] J. DAMAGE TO FLORA — 02 ☐ OBSERVED (DATE: _____) — [X] POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION
POTENTIAL RELEASES FROM IMPOUNDMENTS MAY HAVE IMPACTED FLORA NEAR THE SINKHOLE

01 [X] K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION (Include name(s) of species)
POTENTIAL RELEASES FROM IMPOUNDMENTS MAY HAVE IMPACTED FAUNA NEAR THE SINKHOLE

01 ☐ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 [X] M. UNSTABLE CONTAINMENT OF WASTES (Spills, runoff, standing liquids, leaking drums) — 02 ☐ OBSERVED (DATE: _____) — [X] POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____
04 NARRATIVE DESCRIPTION
F006 ELECTROPLATING SLUDGES FROM THE IMPOUNDMENTS MAY LEACHED INTO THE GROUNDWATER NEAR THE SINKHOLE

01 ☐ N. DAMAGE TO OFFSITE PROPERTY — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

III. TOTAL POPULATION POTENTIALLY AFFECTED: _____

IV. COMMENTS

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

LOGBOOK - VISUAL SITE INSPECTION DOCUMENTATION - DEC 11, 1989.

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
KY	D098950306

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☐ A GROUNDWATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) — ☒ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

LEACHING OF FOOD SLUDGES MAY HAVE IMPACTED GROUNDWATER IN AND AROUND THE SINKHOLE, FROM WASTEWATER DISCHARGE.

01 ☐ B SURFACE WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) — ☒ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

SURFACE WATER IN THE AREA (SINKHOLE) IS ACTUALLY SURFACE EXPRESSED GROUNDWATER. GROUNDWATER MAY HAVE BEEN IMPACTED BY DISCHARGE TO THE SINKHOLE

01 ☐ C CONTAMINATION OF AIR — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

01 ☐ D FIRE/EXPLOSIVE CONDITIONS — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

01 ☐ E DIRECT CONTACT — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

01 ☐ F CONTAMINATION OF SOIL — 02 ☒ OBSERVED (DATE: 7/30/86) — ☐ POTENTIAL — ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: _____ (Acres) — 04 NARRATIVE DESCRIPTION

SEVERAL POST-CLOSURE SAMPLES EXCEEDED THE TWO-TIMES BACKGROUND LIMIT AGREED TO BY THE STATE. CLOSURE WAS CERTIFIED NONTHELESS.

01 ☐ G DRINKING WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

01 ☐ H WORKER EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
03 WORKERS POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

01 ☐ I POPULATION EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

Eaton Corporation
Manufacturing Services Center
32500 Chardon Road
Willoughby Hills, Ohio 44094
Telephone (216) 523-5000

January 3, 1990

Mitchell Cohen
NUS Corporation
1927 Lakeside Parkway
Suite 614
Tucker, Georgia 30084

Re: Information Request Regarding Eaton's Bowling Green Facility

Dear Mr. Cohen:

EATON

On January 2, 1990 I received a memo in which you requested additional information regarding Eaton's Bowling Green Facility. Responses to your inquires follow:

Question 1: Does Eaton Corp. own the property or lease from another owner?

Response 1: Eaton Corporation leases the property from the City of Bowling Green.

Question 2: Who picks up drummed wastes and where are the drums disposed of? (This pertains to hazardous wastes stored in the plant - SWMU 17)

Response 2: Hazardous waste is transported by Heritage Transport, Incorporated to Heritage Environmental Services Facility in Indianapolis, Indiana.

Question 3: When were scrap dumpsters placed in service?

Response 3: Eaton Corporation has produced scrap material since operations bega in 1964. The scrap has been deposited in 20 yard dumpsters or some other type of solid waste management units the entire 25 years of operation. Dumpsters ar emptied on a regular basis by a local waste hauler.

Question 4: Please provide NPDES permit number and when it expired?

Response 4: Eaton currently operates its pretreatment facility under Wastewate Discharge Permit No. P010. The permit expires on April 4, 1992.

Question 5: What was the depth of the closed impoundments?

Response 5: The approximate depths of the closed impoundments ranged from 5 tc feet.

Question 6: Please provide air permit information for the paint booth?

Response 6: The paint booth's current operating permit is 0-79-428.

If you need additional information, please call me at (216) 523-6745.

EATON

Sincerely,

Steve Fesko

CC: Sharon Sigler
Jerry Wooten

NUS CORPORATION AND SUBSIDIARIES		*TELECON NOTE*
CONTROL NO.	DATE: December 8, 1989	TIME: 10:15
DISTRIBUTION: Eaton Corporation		
BETWEEN: Steve Fesko	OF: Eaton Corporation	PHONE: (216) 523-6745
AND: Mitch Cohen, NUS Corporation		

DISCUSSION:

Steve said that after consulting with his legal department, he felt that the investigation would be allowed. We set up a meeting time of 13:00 Monday, December 11, 1989.

ACTION ITEMS:

Eaton Corporation
Manufacturing Services Center
32500 Chardon Road
Willoughby Hills, Ohio 44094
Telephone (216) 523-5000

000174

CERTIFIED MAIL P31 9519523

August 7, 1981

U. S. EPA
Region IV
Sites Notification
Atlanta, GA. 30308

RE: Superfund Sites Notification

Gentlemen:

EATON

Eaton Corporation notified the EPA of reportable hazardous waste sites on June 9 and 29. A continuing survey has since uncovered a reportable site at the Eaton Corporation plant in Bowling Green, Kentucky. An appropriate notification form is attached.

Sincerely,

Kenneth Manchen

Kenneth Manchen
Staff Environmental Engineer

KM:ph

Attachment

P.S. A notification report was mailed to you on June 9, 1981 for the Eaton Corporation plant in Athens, Alabama. The type of hazardous waste facility located there is a land-fill and not a land treatment site as was indicated. Please revise your records.

EPA Notification of Hazardous Waste Site

R

United States
Environmental Protection
Agency
Washington DC 20460

This initial notification information is required by Section 103(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 and must be mailed by June 9, 1981.

Please type or print in ink. If you need additional space, use separate sheets of paper. Indicate the letter of the item which applies.

810814 000173
KY SD 000001120

RECEIVED
EPA/REGION IV
AUG 14
EPA/REGION IV
DIVISION OF

A Person Required to Notify:

Enter the name and address of the person or organization required to notify.

Name: Eaton Corporation; Standard Power Control Division
Street: 2901 Industrial Drive
City: Bowling Green State: KY Zip Code: 42101

B Site Location:

Enter the common name (if known) and actual location of the site.

KYD 098 950 306

Name of Site: (Same as Above)
Street:
City: County: State: Zip Code:

C Person to Contact:

Enter the name, title (if applicable), and business telephone number of the person to contact regarding information submitted on this form.

Name (Last, First and Title): Smith, Mel; Sr. Project Engineer
Phone: 502/782-1555

D Dates of Waste Handling:

Enter the years that you estimate waste treatment, storage, or disposal began and ended at the site.

From (Year): 1965 To (Year): 1981

E Waste Type: Choose the option you prefer to complete

Option 1: Select general waste types and source categories. If you do not know the general waste types or sources, you are encouraged to describe the site in Item I—Description of Site.

General Type of Waste:
Place an X in the appropriate boxes. The categories listed overlap. Check each applicable category.

1. ☐ Organics
2. ☐ Inorganics
3. ☐ Solvents
4. ☐ Pesticides
5. ☐ Heavy metals
6. ☐ Acids
7. ☐ Bases
8. ☐ PCBs
9. ☐ Mixed Municipal Waste
10. ☐ Unknown
11. ☐ Other (Specify)

_____
_____
_____

Source of Waste:
Place an X in the appropriate boxes.

1. ☐ Mining
2. ☐ Construction
3. ☐ Textiles
4. ☐ Fertilizer
5. ☐ Paper/Printing
6. ☐ Leather Tanning
7. ☐ Iron/Steel Foundry
8. ☐ Chemical, General
9. ☐ Plating/Polishing
10. ☐ Military/Ammunition
11. ☐ Electrical Conductors
12. ☐ Transformers
13. ☐ Utility Companies
14. ☐ Sanitary/Refuse
15. ☐ Photofinish
16. ☐ Lab/Hospital
17. ☐ Unknown
18. ☐ Other (Specify)

_____
_____
_____

Option 2: This option is available to persons familiar with the Resource Conservation and Recovery Act (RCRA) Section 3001 regulations (40 CFR Part 261).

Specific Type of Waste:
EPA has assigned a four-digit number to each hazardous waste listed in the regulations under Section 3001 of RCRA. Enter the appropriate four-digit number in the boxes provided. A copy of the list of hazardous wastes and codes can be obtained by contacting the EPA Region serving the State in which the site is located.

F006		

Form Approved
OMB No. 2000-0138
EPA Form 8900-1

Notification of Hazardous Waste Site **Side Two**

F Waste Quantity:

Place an X in the appropriate boxes to indicate the facility types found at the site.

In the "total facility waste amount" space give the estimated combined quantity (volume) of hazardous wastes at the site using cubic feet or gallons.

In the "total facility area" space, give the estimated area size which the facilities occupy using square feet or acres.

Facility Type

1. ☐ Piles
2. ☐ Land Treatment
3. ☐ Landfill
4. ☐ Tanks
5. ☒ Impoundment
6. ☐ Underground Injection
7. ☐ Drums, Above Ground
8. ☐ Drums, Below Ground
9. ☐ Other (Specify) _____

Total Facility Waste Amount

cubic feet 57,286 (est.)

gallons _____

Total Facility Area

square feet _____

acres One (approx.)

G Known, Suspected or Likely Releases to the Environment:

Place an X in the appropriate boxes to indicate any known, suspected, or likely releases of wastes to the environment.

☐ Known ☐ Suspected ☐ Likely ☐ None

UNKNOWN

Note: Items H and I are optional. Completing these items will assist EPA and State and local governments in locating and assessing hazardous waste sites. Although completing the items is not required, you are encouraged to do so.

H Sketch Map of Site Location: (Optional)

Sketch a map showing streets, highways, routes or other prominent landmarks near the site. Place an X on the map to indicate the site location. Draw an arrow showing the direction north. You may substitute a publishing map showing the site location.

I Description of Site: (Optional)

Describe the history and present conditions of the site. Give directions to the site and describe any nearby wells, springs, lakes, or housing. Include such information as how waste was disposed and where the waste came from. Provide any other information or comments which may help describe the site conditions.

Our original electroplating waste water system provided for integrated closed-loop treatment of chromium and copper (acid) plating solutions: Zinc and copper (cyanide) plating solutions; and floor spill batch treatment. A closed loop Nickel treatment system was later added. Treated effluent was then discharged to lined sludge beds which in turn overflowed to lined settling ponds. Under a permit from the state of Kentucky, discharge from these ponds was then directed to a lake on our property. With the installation of new, and additional treatment equipment, our surface impoundments were deactivated on 6/15/81. Negotiations are now underway for the removal of these impoundments in accord with a closure plan approved by the Division of Hazardous Material and Waste Management, State of Kentucky. Our treatment system now provides for in-line development of filter cake with discharge of the resulting effluent to the local POTW.

J Signature and Title:

The person or authorized representative (such as plant managers, superintendents, trustees or attorneys) of persons required to notify must sign the form and provide a mailing address (if different than address in item A). For other persons providing notification, the signature is optional. Check the boxes which best describe the relationship to the site of the person required to notify. If you are not required to notify check "Other".

Name D. Adams, Plant Manager

Street (Same as item A)

City _____ State _____ Zip Code _____

Signature D. M. Adams Date 7-30-81

- ☐ Owner, Present
- ☐ Owner, Past
- ☐ Transporter
- ☒ Operator, Present
- ☐ Operator, Past
- ☐ Other

POTENTIAL HAZARDOUS WASTE SITE
IDENTIFICATION AND PRELIMINARY ASSESSMENT

EPA

REGION	SITE NUMBER (to be assigned by Hq)

NOTE: This form is completed for each potential hazardous waste site to help set priorities for site inspection. The information submitted on this form is based on available records and may be updated on subsequent forms as a result of additional inquiries and on-site inspections.

GENERAL INSTRUCTIONS: Complete Sections I and III through X as completely as possible before Section II *(Preliminary Assessment)*. File this form in the Regional Hazardous Waste Log File and submit a copy to: U.S. Environmental Protection Agency, Hazardous Waste Enforcement Task Force *(EN-335)*, 401 M St., SW, Washington, DC 20460.

KYD098950306 WARREN
EATON CORP/STD POWER CONTROL DIV
2901 INDUSTRIAL DR
BOWLING GREEN KY 42101
SMITH, MED, SR PROJ ENGR 5027821555

CATION
REET (or other identifier)

ATE	E. ZIP CODE	F. COUNTY NAME

2. TELEPHONE NUMBER

H. TYPE OF OWNERSHIP
☐ 1. FEDERAL ☐ 2. STATE ☐ 3 COUNTY ☐ 4 MUNICIPAL ☐ 5 PRIVATE ☐ 6 UNKNOWN

"103-C NOTIFICATION" DATE: 810814
CARL SCHROEDER
PHONE: 502-564-6716

K. DATE IDENTIFIED (mo., day, & yr.)

2. TELEPHONE NUMBER

II. PRELIMINARY ASSESSMENT *(complete this section last)*

A. APPARENT SERIOUSNESS OF PROBLEM
☐ 1. HIGH ☐ 2. MEDIUM ☐ 3 LOW ☐ 4 NONE ☐ 5 UNKNOWN

B. RECOMMENDATION
☐ 1. NO ACTION NEEDED *(no hazard)*
☐ 2. IMMEDIATE SITE INSPECTION NEEDED
a. TENTATIVELY SCHEDULED FOR:
b. WILL BE PERFORMED BY:
☐ 3. SITE INSPECTION NEEDED
a. TENTATIVELY SCHEDULED FOR:
b. WILL BE PERFORMED BY
☐ 4. SITE INSPECTION NEEDED *(low priority)*

C. PREPARER INFORMATION

1. NAME	2. TELEPHONE NUMBER	3. DATE (mo., day, & yr.)

III. SITE INFORMATION

A. SITE STATUS
☐ 1. ACTIVE *(Those industrial or municipal sites which are being used for waste treatment, storage, or disposal on a continuing basis, even if infrequently.)*
☐ 2. INACTIVE *(Those sites which no longer receive wastes.)*
☐ 3. OTHER *(specify)*: *(Those sites that include such incidents like "midnight dumping" where no regular or continuing use of the site for waste disposal has occurred.)*

B. IS GENERATOR ON SITE?
☐ 1. NO ☐ 2. YES (specify generator's four-digit SIC Code):

C. AREA OF SITE *(in acres)*

D. IF APPARENT SERIOUSNESS OF SITE IS HIGH, SPECIFY COORDINATES

1. LATITUDE (deg.-min.-sec.)	2. LONGITUDE (deg.-min.-sec.)

E. ARE THERE BUILDINGS ON THE SITE?
☐ 1 NO ☐ 2. YES *(specify)*:

Continue On Reverse

Continued From Front

IV. CHARACTERIZATION OF SITE ACTIVITY

Indicate the major site activity(ies) and details relating to each activity by marking 'X' in the appropriate boxes.

X	A. TRANSPORTER	X	B. STORER	X	C. TREATER	X	D. DISPOSER
	1. RAIL		1. P		1. FILTRATION		1. LANDFILL
	2. SHIP		2. SURFACE IMPOUNDMENT		2. INCINERATION		2. LANDFARM
	3. BARGE		3. DRUMS		3. VOLUME REDUCTION		3. OPEN DUMP
	4. TRUCK		4. TANK, ABOVE GROUND		4. RECYCLING/RECOVERY		4. SURFACE IMPOUNDMENT
	5. PIPELINE		5. TANK, BELOW GROUND		5. CHEM./PHYS. TREATMENT		5. MIDNIGHT DUMPING
	6. OTHER (specify)		6. OTHER (specify)		6. BIOLOGICAL TREATMENT		6. INCINERATION
					7. WASTE OIL REPROCESSING		7. UNDERGROUND INJECTION
					8. SOLVENT RECOVERY		8. OTHER (specify)
					9. OTHER (specify)		

E. SPECIFY DETAILS OF SITE ACTIVITIES AS NEEDED

V. WASTE RELATED INFORMATION

A. WASTE TYPE

1 UNKNOWN 2 LIQUID 3 SOLID 4 SLUDGE 5 GAS

B. WASTE CHARACTERISTICS

1 UNKNOWN 2 CORROSIVE 3 IGNITABLE 4 RADIOACTIVE 5 HIGHLY VOLATILE
6 TOXIC 7 REACTIVE 8 INERT 9 FLAMMABLE

10 OTHER (specify)

C. WASTE CATEGORIES

1. Are records of wastes available? Specify items such as manifests, inventories, etc., below.

2. Estimate the amount (specify unit of measure) of waste by category, mark 'X' to indicate which wastes are present.

a. SLUDGE	b. OIL	c. SOLVENTS	d. CHEMICALS	e. SOLIDS	f. OTHER
AMOUNT	AMOUNT	AMOUNT	AMOUNT	AMOUNT	AMOUNT
UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE
X 1. PAINT PIGMENTS	X 1. OILY WASTES	X 1. HALOGENATED SOLVENTS	X 1. ACIDS	X 1. PCBs	X 1. LABORATORY PHARMACEUT.
2. METALS SLUDGES	2. OTHER (specify)	2. NONHALOGENATED SOLVENTS	2. BASES/CAUSTICS	2. ASBESTOS	2. HOSPITAL
3. POTW		3. OTHER (specify)	3. CAUSTICS	3. MINE TAILINGS	3. RADIOACTIVE
4. ALUMINUM SLUDGE			4. PESTICIDES	4. FERROUS SMELTG. WASTES	4. MUNICIPAL
5. OTHER (specify)			5. DYES/INKS	5. NONFERROUS SMELTG. WASTES	6. OTHER (specify)
			6. CYANIDE	6. OTHER (specify)	
			7. PHENOLS		
			8. HALOGENS		
			9. PCBs		
			10. METALS		
			11. OTHER (specify)		

Continue On Page 3

Continued From Page 2

V. WASTE RELATED INFORMATION *(continued)*

3. LIST SUBSTANCES OF GREATEST CONCERN WHICH MAY BE ON THE SITE *(place in descending order of hazard)*.

4. ADDITIONAL COMMENTS OR NARRATIVE DESCRIPTION OF SITUATION KNOWN OR REPORTED TO EXIST AT THE SITE.

VI. HAZARD DESCRIPTION

A. TYPE OF HAZARD	B. POTENTIAL HAZARD *(mark 'X')*	C. ALLEGED INCIDENT *(mark 'X')*	D. DATE OF INCIDENT *(mo., day, yr.)*	E. REMARKS
1. NO HAZARD				
2. HUMAN HEALTH				
3. NON-WORKER INJURY/EXPOSURE				
4. WORKER INJURY				
5. CONTAMINATION OF WATER SUPPLY				
6. CONTAMINATION OF FOOD CHAIN				
7. CONTAMINATION OF GROUND WATER				
8. CONTAMINATION OF SURFACE WATER				
9. DAMAGE TO FLORA/FAUNA				
10. FISH KILL				
11. CONTAMINATION OF AIR				
12. NOTICEABLE ODORS				
13. CONTAMINATION OF SOIL				
14. PROPERTY DAMAGE				
15. FIRE OR EXPLOSION				
16. SPILLS/LEAKING CONTAINERS/ RUNOFF/STANDING LIQUIDS				
17. SEWER, STORM DRAIN PROBLEMS				
18. EROSION PROBLEMS				
19. INADEQUATE SECURITY				
20. INCOMPATIBLE WASTES				
21. MIDNIGHT DUMPING				
22. OTHER *(specify)*				

Continue On Reverse

Continued From Front

VII. PERMIT INFORMATION

A. INDICATE ALL APPLICABLE PERMITS HELD BY THE SITE.

☐ 1 NPDES PERMIT ☐ 2 SPCC PLAN ☐ 3 STATE PERMIT *(specify)* _____

☐ 4 AIR PERMITS ☐ 5 LOCAL PERMIT ☐ 6 RCRA TRANSPORTER

☐ 7 RCRA STORER ☐ 8 RCRA TREATER ☐ 9 RCRA DISPOSER

☐ 10. OTHER *(specify)*: _____

B. IN COMPLIANCE?

☐ 1. YES ☐ 2 NO ☐ 3 UNKNOWN

4 WITH RESPECT TO *(list regulation name & number)* _____

VIII. PAST REGULATORY ACTIONS

☐ A. NONE ☐ B. YES *(summarize below)*

IX. INSPECTION ACTIVITY *(past or on-going)*

☐ A NONE ☐ B YES *(complete items 1,2,3, & 4 below)*

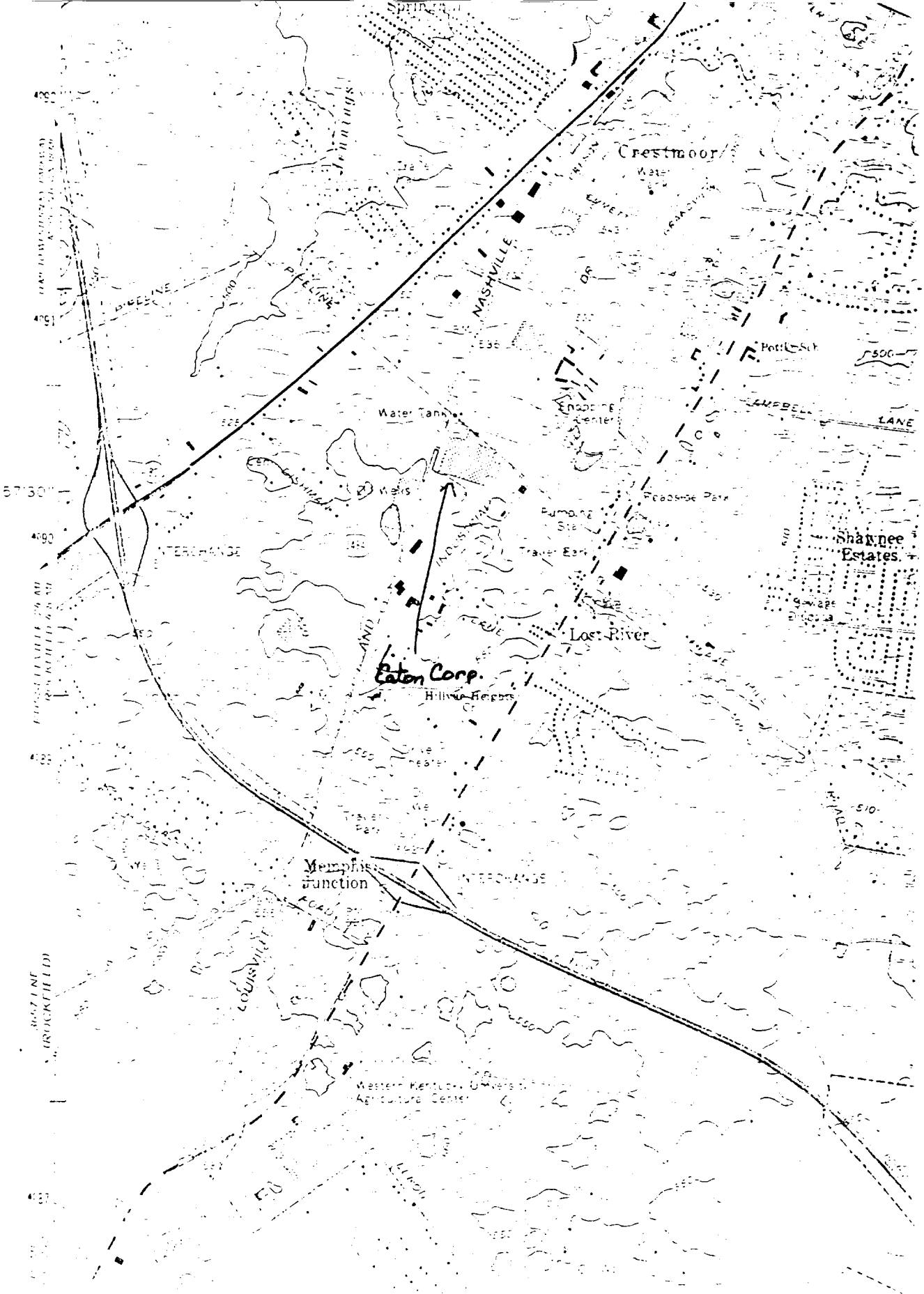
1 TYPE OF ACTIVITY	2 DATE OF PAST ACTION *(mo., day, & yr.)*	3 PERFORMED BY: *(EPA/State)*	4. DESCRIPTION

X. REMEDIAL ACTIVITY *(past or on-going)*

☐ A. NONE ☐ B. YES *(complete items 1, 2, 3, & 4 below)*

1. TYPE OF ACTIVITY	2. DATE OF PAST ACTION *(mo., day, & yr.)*	3. PERFORMED BY *(EPA/State)*	4. DESCRIPTION

NOTE: Based on the information in Sections III through X, fill out the Preliminary Assessment *(Section II)* information on the first page of this form.


Crestmoor
Water Tanks
Lost River
Eaton Corp.
Hillview Heights
Memphis Junction
Shawnee Estates
Trailer Park
Western Kentucky University Agriculture Center
NASHVILLE
PIPELINE
INTERCHANGE
LOUISVILLE
LANE
ROAD

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET. N.E.
ATLANTA. GEORGIA 30365

4WD-SISB

DEC 5 1989

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Roland McAbee
Eaton Corporation
2901 Fitzgerald Industrial Drive
Bowling Green, Kentucky 42101

RE: Eaton Corporation
Bowling Green, Kentucky
KYD098950306

Dear Mr. McAbee:

The United States Environmental Protection Agency (EPA), pursuant to the authority and requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 U.S.C. 9601 et seq., Public Law 99-499 and Section 3007 of the Resource Conservation and Recovery Act (RCRA), is planning to conduct an investigation of the above referenced site. Eaton Corporation is located in Bowling Green, Kentucky. EPA has reason to believe that there may be a release or threat of a release of hazardous substances from the site into the surrounding environment. The purpose of this investigation is to determine, as stated in CERCLA (104)(e)(2)(A), the identification, nature, and quantity of materials which have been or are generated, treated, stored or disposed of at a vessel or facility or transported to a vessel or facility.

As per the telephone conversation on November 28, 1989, between you and Mitch Cohen, EPA is requesting permission for access to your property at all reasonable times beginning on or about December 11, 1989, and continuing through completion of the investigation on or about December 12, 1989. Activities to be conducted during the investigation include:

1. Inspect, sketch, and photograph the premises;

2. Review records of Solid Waste Management Units (SWMUs) which provide for;

   (i) The location of the unit(s) on the topographic map.

   (ii) Designation of type of unit(s).

   (iii) General dimensions and structural description (supply any available drawings).

(iv) When the unit was operated.

(v) Specification of all wastes that have been managed at the unit to the extent available.

3. Review of any records of releases of hazardous waste or hazardous constituents from such units.

4. Review records on the size and type of facility, and the manufacturing process to determine past waste handling practices.

The above activities will be conducted by personnel from EPA Region IV's Field Investigation Team (FIT). Mitch Cohen of FIT will contact you prior to the actual site visit to make final arrangements and note any changes.

If you have any questions, please contact me at (404) 347-5065.

Your cooperation in this matter is appreciated.

Sincerely,

Susan Roberts

Susan Roberts
Environmental Scientist

cc: Bob Rose, NUS Corporation
Mitch Cohen, NUS Corporation
Mohammad Alayddin, KYDEP

M.2 - SITE MAINTENANCE FORM

* ACTION: _ *

EPA ID: KYD098950306

SITE NAME: EATON CORP BOWLING GREEN PLT SOURCE: H * _____ _ *

STREET: 2901 IND DR CONG DIST: 02 * _____ __ *

CITY: BOWLING GREEN ZIP: 42101 * _____ _____-____ *

CNTY NAME: WARREN CNTY CODE: 227 * _____ ___ *

LATITUDE: 36/57/30.0 LONGITUDE: 086/29/00.0 * __/__/__._ ___/__/__._ *

SMSA: HYDRO UNIT: 05110002 * ____ _____ *

INVENTORY IND: Y REMEDIAL IND: Y REMOVAL IND: N FED FAC IND: N * _ _ _ _ *

NPL IND: N NPL LISTING DATE: NPL DELISTING DATE: * _ __/__ __/__ *

APPROACH: SITE CLASS: * ___ __ *

SITE/SPILL IDS: * __ __ __ __ __ *

RPM NAME: BETSY SHAVER RPM PHONE: 404-881-2234 * _____ ___-___-____ *

DIOXIN TIER: REG FLD1: REG FLD2: 6 * ____ _____ _ *

RESP TERM: PENDING ( ) NO FURTHER ACTION ( ) * PENDING (_) NO FURTHER ACTION (_) *

ENF DISP: NO VIABLE RESP PARTY ( ) VOLUNTARY RESPONSE ( ) * _ _ *

ENFORCED RESPONSE ( ) COST RECOVERY ( ) * _ _ *

SITE DESCRIPTION:

* _____ *

* _____ *

* _____ *

* _____ *

M.2 - ALIAS/ALIAS LOCATION MAINTENANCE FORM

* ACTION: _ *

SITE: EATON CORP BOWLING GREEN PLT

EPA ID: KYD098950306 ALIAS SEQ NO: 01

ALIAS NAME: EATON CORP/STD POWER CONTROL DIV SOURCE: N * _____ _ *

ALIAS LOCATION * ACTION: _ *

CONTIGUOUS PORTION OF SITE? C * _ *

STREET: 2901 INDUSTRIAL DR CONG DIST: 02 * _____ __ *

CITY: BOWLING GREEN ST: KY ZIP: 42101 * _____ __ _____-____ *

CNTY NAME: WARREN CNTY CODE: 227 * _____ ___ *

LATITUDE: 36/59/18.0 LONGITUDE: 086/27/18.0 * __/__/__._ ___/__/__._ *

SMSA: HYDRO UNIT: 05110002 * ____ _____ *

ALIAS DESCRIPTION:

* _____ *
* _____ *
* _____ *
* _____ *

M.2 - PROGRAM MAINTENANCE FORM

* ACTION: _ *

SITE: EATON CORP BOWLING GREEN PLT

EPA ID: KYD098950306 PROGRAM CODE: H01 PROGRAM TYPE: * _ *

PROGRAM QUALIFIER: ALIAS LINK : * ___ __ *

PROGRAM NAME: SITE EVALUATION * _____ *

DESCRIPTION:

* _____ *
* _____ *
* _____ *
* _____ *

M.2 - EVENT MAINTENANCE FORM

* ACTION: _ *

SITE: EATON CORP BOWLING GREEN PLT
PROGRAM: SITE EVALUATION

EPA ID: KYD098950306 PROGRAM CODE: H01 EVENT TYPE: DS1

FMS CODE: EVENT QUALIFIER: EVENT LEAD: E * _ ___ _ *

EVENT NAME: DISCOVERY STATUS: * _____ _ *

DESCRIPTION:

* _____ *
* _____ *
* _____ *
* _____ *

ORIGINAL	CURRENT	ACTUAL			
START:	START:	START:	* __/__/__	__/__/__	__/__/__ *
COMP :	COMP :	COMP : 80/08/01	* __/__/__	__/__/__	__/__/__ *

HQ COMMENT:

* _____ *

RG COMMENT:

* _____ *

COOP AGR #	AMENDMENT #	STATUS	STATE %		
* _____	_____	—	___ *		

M.2 - EVENT MAINTENANCE FORM

* ACTION: _ *

SITE: EATON CORP BOWLING GREEN PLT
PROGRAM: SITE EVALUATION

EPA ID: KYD098950306 PROGRAM CODE: H01 EVENT TYPE: PA1

FMS CODE: EVENT QUALIFIER: EVENT LEAD: S * _ ___ _ *

EVENT NAME: PRELIMINARY ASSESSMENT STATUS: * _____ _ *

DESCRIPTION:

* _____ *
* _____ *
* _____ *
* _____ *

	ORIGINAL	CURRENT	ACTUAL			
START:		START:	START: 84/04/01	__/__/__	__/__/__	__/__/__
COMP :		COMP :	COMP : 84/08/01	__/__/__	__/__/__	__/__/__

HQ COMMENT:

* _____ *

RG COMMENT:

* _____ *

COOP AGR #	AMENDMENT #	STATUS	STATE %				
				_____	_____	_	___

M.2 - COMMENT MAINTENANCE FORM

SITE: EATON CORP BOWLING GREEN PLT

EPA ID: KYD098950306

COM NO	COMMENT	ACTION
001	PART A- ON FILE	
002	KYS000001120 -ORIGINAL ELECTROPLATI	
	NG WASTE WATER SYSTEM PROVIDED FOR	
003	INTEGRATED CLOSED LOOP TREATMENT OF	
	CHROMIUM AND COPPER (ACID) PLATING	
004	SOLUTIONS: ZINC AND COPPER (CYANIDE	
	) PLATING SOLUTIONS; AND FLOOR	
005	SPILL BATCH TREATMENT. A CLOSED LOO	
	P NICKEL TREATMENT SYSTEM WAS	
006	LATER ADDED. TREATED EFFLUENT WAS T	
	HEN DISCHARGED TO LINED SLUDGE BEDS	
007	WHICH IN TURN OVER FLOWED TO LINED	
	SETTLING PONDS. TREATMENT SYSTEM	
008	NOW PROVIDES FOR IN-LINE DEVELOPMEN	
	T OF FILTER CAKE WITH DISCHARGE OF	
009	RESULTING EFFLUENT TO THE LOCAL POT	
	W. 1965 TO 1981.	
010	CONTACT: MEL SMITH---SR. PROJECT EN	
	GR. 502/782-1555	

M.2 - REGIONAL UTILITY MAINTENANCE FORM

SITE: EATON CORP BOWLING GREEN PLT

EPA ID: KYD098950306

REG CODE: HSCA-01 * ACTION: _ *
DESCRIPTION: ACIDS * _____ *
* _____ *
DATE1: * __/__/__ *
DATE2: * __/__/__ *
DATE3: * __/__/__ *
FREE FIELD: * _____ *

REG CODE: HSCH-01 * ACTION: _ *
DESCRIPTION: HEAVY METALS * _____ *
* _____ *
DATE1: * __/__/__ *
DATE2: * __/__/__ *
DATE3: * __/__/__ *
FREE FIELD: * _____ *

REG CODE: OPDS-01 * ACTION: _ *
DESCRIPTION: SURFACE IMPOUNDMENTS * _____ *
* _____ *
DATE1: * __/__/__ *
DATE2: * __/__/__ *
DATE3: * __/__/__ *
FREE FIELD: * _____ *

M.2 - REGIONAL UTILITY MAINTENANCE FORM

SITE: EATON CORP BOWLING GREEN PLT

EPA ID: KYD098950306

REG CODE: OSIP-01 * ACTION: _ *
DESCRIPTION: METAL PLATING * _____ *
* _____ *
DATE1: * __/__/__ *
DATE2: * __/__/__ *
DATE3: * __/__/__ *
FREE FIELD: * _____ *

REG CODE: 4HRN-01 * ACTION: _ *
DESCRIPTION: PRELIMINARY HAZARD RANKING NEEDED * _____ *
* _____ *
DATE1: * __/__/__ *
DATE2: * __/__/__ *
DATE3: * __/__/__ *
FREE FIELD: * _____ *

REG CODE: 4R12-01 * ACTION: _ *
DESCRIPTION: RCRA 3012 COOPERATIVE AGREEMENT; PA * _____ *
* _____ *
DATE1: * __/__/__ *
DATE2: * __/__/__ *
DATE3: * __/__/__ *
FREE FIELD: * _____ *

Facility Visual Site Inspection Form

Facility Name:_____ EPA ID No.:_____

Location/Address:_____ TDD No.:_____

_____

Facility Contact/ Title:_____

Phone Number:(___)_____

Date of Inspection:_____ Time of Ins.:_____ to_____

Weather:_____

Person(s) Interviewed	Organization	Title

Inspector(s)	Organization	Title

Facility Description:_____

Visual Site Inspection (VSI)

Specific Objectives:

(d) Information requirements for solid waste management units.

(1) The following information is required for each solid waste management unit at a facility seeking a permit:

(i) The location of the unit on the topographic map required under paragraph (b)(19) of this section.

(ii) Designation of type of unit.

(iii) General dimensions and structural description (supply any available drawings).

(iv) When the unit was operated.

(v) Specification of all wastes that have been managed at the unit, to the extent available.

(2) The owner or operator of any facility containing one or more solid waste management units must submit all available information pertaining to any release of hazardous wastes or hazardous constituents from such unit or units.

(3) The owner/operator must conduct and provide the results of sampling and analysis of groundwater, landsurface, and subsurface strata, surface water, or air, which may include the installation of wells, where the Director ascertains it is necessary to complete a RCRA Facility Assessment that will determine if a more complete investigation is necessary.

(Approved by the Office of Management and Budget under control numbers 2050-0009, 2050-0002, and 2050-0007)

[48 FR 14228, Apr. 1, 1983; 48 FR 30114, June 30, 1983, as amended at 50 FR 2006, Jan. 14, 1985; 51 FR 16458, May 2, 1986; 51 FR 25486, July 14, 1986; 51 FR 40653, Nov. 7, 1986; 52 FR 23450, July 9, 1987; 52 FR 25953, July 9, 1987; 52 FR 33936, Sept. 9, 1987; 52 FR 45799, Dec. 1, 1987; 52 FR 46965, Dec. 10, 1987]

Steve:

This is from CFR 40 Part 270.14 (d) pertaining to solid waste management units.

Note: (1)(i)
(1)(ii)
(1)(iii) – Capacities of tanks and materials of construction
(1)(iv)
(1)(v)

(2) any releases, even if raw product was released from a storage tank or plating bath

(3) particularly monitoring conducted around the closed impoundments

I'll see you Monday at 1:00 PM.

Mitch Cohen

NUS CORPORATION
1927 LAKESIDE PARKWAY
SUITE 614
TUCKER, GEORGIA 30084
404/938-7710

TO: Steve Fesko DATE: 1/2/90

COMPANY: Eaton Corp LOCATION: Willoughby Hills, OH

TELECOPY NO: 216-523-6498 EXT: _____

FROM: Mitch Cohen

PAGE 1 OF 2 CHARGE NO: KY87PAL

RETURN DOCUMENT: YES _____ NO _____

SPECIAL INSTRUCTIONS: _____

TELECOPY SENT:

DATE: 1/2/90 TIME: 8:50

SIGNATURE: Mitch Cohen

Steve Fesko:

Here are several questions for you to answer.

1. Does Eaton Corp. own the property or lease from another owner?

2. Who picks up drummed wastes and where are the drums disposed of? (This pertains to hazardous wastes stored in the plant - SWMU No. 17

3. When were scrap dumpsters placed in service?

4. Please provide NPDES permit number and when it expired

5. What was the depth of the closed impoundments?

6. Please provide air permit information for the paint booth.

You might have to contact Roland McAbee for some of the answers. Please call or send back the answers as soon as you can (404-938-7710)

Happy New Year,

Mitch Cohen

4WD-SISB

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Dave M. Adams
2901 Fitzgerald-Industrial Drive
Bowling Green, Kentucky
42101

RE: Eaton Corporation / Bowling Green Plant
Bowling Green, Kentucky 42101

Dear Mr. Adams,

The United States Environmental Protection Agency (EPA), pursuant to the authority and requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 U.S.C. §9601 et seq., as amended by the Superfund Amendments and Reauthorization Act (SARA), Public Law 99-499, is planning to conduct an investigation of the above-referenced site.

EPA has reason to believe that there may be a release or threat of a release of hazardous substances from the site into the surrounding environment. The purpose of the investigation is to determine the nature and extent of contamination at the site and to determine what, if any, further response action would be appropriate.

EPA is requesting permission for access to your property beginning on or about Jan. 9, 1989 and continuing through completion of the investigation on or about Jan. 13, 1989 Activities to be conducted during the investigation include:

1. Inspect, sketch, and photograph the premises;

2. Collect surface and subsurface soil samples;

3. Collect groundwater and subsurface water samples;

4. Collect sediment samples;

5. Conduct air monitoring;

6. Transportation of equipment onto and about the site as necessary to accomplish the activities above, including trucks and sampling equipment.

The above sampling activity will be conducted by personnel from EPA Region IV's Field Investigation Team (FIT). Mary McDonald of FIT will contact you prior to the actual site visit to make final arrangements and note any changes.

Split samples will be made available if requested. However, you will be required to furnish your own containers as well as your own laboratory analyses.

Pursuant to section 104 of CERCLA, as amended by SARA, Congress has given EPA express authority to conduct this investigation. Further, CERCLA authorizes designated EPA representatives to enter and obtain samples from any facility where there exists a reasonable basis to believe there may be a

ACCESS INFORMATION SHEET

Site Name: Eaton Corporation **FIT Project Manager:** Mary McDonald
Site Address: 2901 Fitzgerald Industrial Drive **FIT State Coordinator:** Julie Knapp
Bowling Green, Ky 42101 **EPA Contact:** Robert Morris
(502) 782-1555

EPA ID#: KYD 048 150 356
TDD No: F4-8806-12 **Field Date:** 1-9-89

	File Information	Verification
Facility Owner/Operator **Address** **Phone No.** **Principal Contact**	Dave Adams - Plant Mgr. 2901 Fitzgerald Industrial Drive Bowling Green, Ky 42101 502-782-1555 Mel Smith - Project Eng.	Dave Adams 2901 Fitzgerald Industrial Dr.
Landowner **Address** **Phone No.** **Principal Contact**		
Date of Information	3-19-84	11-3-88

Date Access Required (3 weeks prior to field date)	12 19 88
Date Access Call Made	11-3-88
Verbal Access Granted	
Verbal Access Denied	X
Date Information Submitted to EPA	11-4-88
with long letter	X
with short letter	

Comments:

NUS CORPORATION AND SUBSIDIARIES — **TELECON NOTE**

CONTROL NO:	DATE: Nov. 3, 1988	TIME: 2.20 pm

DISTRIBUTION:

BETWEEN: Dave M. Adams, Plant Manager	OF: Eaton Corp. Bowling Green, KY	PHONE: (502) 782-1555

AND: Julie G. Knapp

DISCUSSION:

Access for SSI on Jan 9, 1989

He wanted to know why the state wasn't performing the investigation - I told him the letter I was sending would answer his questions and that EPA contact would be given in it.

He said if I really was with the EPA they would let us do the site. He believed it was all a trick to sell him something (?) And would press charges if it was.

ACTION ITEMS:

send long letter to Denise Smith

DNREP/Bureau of Environmental Protection
Environmental Laboratory

Warren Co.

SAMPLE ANALYSIS REPORT

AGENCY: Division of Waste Management

SAMPLE SOURCE:

Name: [redacted]

Address: Service Drive

Bowling Green, Ky.

SAMPLE DESCRIPTION:

#82-31-2 Gray solid

DATE:

Received: 7-22-82 **Analyses Started:** 7-28-82 **Completed:** 10-14-82 **Reported:** 10-14-82

RESULTS:

EP Extraction	As	Ba	Cd	Cr	Hg	Pb	Se	Ag
#82-31-2	.09	.229	.077	.05	.0013	<.1	.03	<.01

Tom Head Scott Jr
Analyst
RTJ

REMARKS:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

4WD-SISB

DEC 5 1989
CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Roland McAbee
Eaton Corporation
2901 Fitzgerald Industrial Drive
Bowling Green, Kentucky 42101

RE: Eaton Corporation
Bowling Green, Kentucky
KYD098950306

Dear Mr. McAbee:

The United States Environmental Protection Agency (EPA), pursuant to the authority and requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 U.S.C. 9601 et seq., Public Law 99-499 and Section 3007 of the Resource Conservation and Recovery Act (RCRA), is planning to conduct an investigation of the above referenced site. Eaton Corporation is located in Bowling Green, Kentucky. EPA has reason to believe that there may be a release or threat of a release of hazardous substances from the site into the surrounding environment. The purpose of this investigation is to determine, as stated in CERCLA (104)(e)(2)(A), the identification, nature, and quantity of materials which have been or are generated, treated, stored or disposed of at a vessel or facility or transported to a vessel or facility.

As per the telephone conversation on November 28, 1989, between you and Mitch Cohen, EPA is requesting permission for access to your property at all reasonable times beginning on or about December 11, 1989, and continuing through completion of the investigation on or about December 12, 1989. Activities to be conducted during the investigation include:

1. Inspect, sketch, and photograph the premises;

2. Review records of Solid Waste Management Units (SWMUs) which provide for;

   (i) The location of the unit(s) on the topographic map.

   (ii) Designation of type of unit(s).

   (iii) General dimensions and structural description (supply any available drawings).

(iv) When the unit was operated.

(v) Specification of all wastes that have been managed at the unit to the extent available.

3. Review of any records of releases of hazardous waste or hazardous constituents from such units.

4. Review records on the size and type of facility, and the manufacturing process to determine past waste handling practices.

The above activities will be conducted by personnel from EPA Region IV's Field Investigation Team (FIT). Mitch Cohen of FIT will contact you prior to the actual site visit to make final arrangements and note any changes.

If you have any questions, please contact me at (404) 347-5065.

Your cooperation in this matter is appreciated.

Sincerely,

Susan Roberts

Susan Roberts
Environmental Scientist

cc: Bob Rose, NUS Corporation
Mitch Cohen, NUS Corporation
Mohammad Alayddin, KYDEP

C-586-9-8-29

September 2, 1988

Mr. Narindar Kumar
Site Investigation and Support Branch
Waste Management Division
Environmental Protection Agency
345 Courtland Street, N. E.
Atlanta, Georgia 30365

Date: _____
Site Disposition: _____
EPA Project Manager: _____

Subject: Preliminary Reassessment
Eaton Corporation
Bowling Green, Warren County, Kentucky
TDD No.F4-8806-12

Dear Mr. Kumar:

FIT 4 conducted a preliminary reassessment of the Eaton Corporation in the city of Bowling Green, Warren County, Kentucky. The reassessment included a review of state and EPA file material, completion of a target survey, and a drive-by reconnaissance of the site and surrounding area.

The Bowling Green plant is under the Cutler-Hammer division of Eaton Corporation and is located in a commercial area. This plant produces electrical motor switchgear for industrial applications. Wastes generated at the plant include electroplating sludge, water-based and other types of paint wastes, used lubricating oil, and used chlorinated solvents (Ref. 5).

A disposal area was set up on the property to receive plant waste, and it operated from 1965 until it was deactivated in 1981 (Ref. 1). The disposal area, a series of open lagoons, was approximately 1 acre in size and had a capacity for more than 196,000 gallons (Ref. 17). Effluent from the electroplating operation was treated then directed to the clay-lined sludge beds which, in turn, overflowed to the clay-lined settling ponds. Under a permit from the state of Kentucky, discharges from the ponds were directed to a sinkhole lake on the property (Ref. 1).

A final closure plan for the disposal area was certified in October, 1984 by Dames & Moore. In order for the final closure plan for the disposal area to be approved, 3254 tons of sludge and 3910 tons of contaminated clay liner were removed. Sampling data collected after the removal of the sludge and clay liner indicated elevated levels of chromium, cadmium, free cyanide, and nickel in the soil around the lagoon. The contaminated soil was also removed prior to closure (Ref. 8).

There are two water-distribution systems serving the Bowling Green area. The Bowling Green Water Company serves 12,512 residential hook-ups, some in the city of Bowling Green and some in rural areas. The Warren County Water District system serves 11,316 residential and 486 commercial hook-ups in rural areas. Both water-distribution systems receive water from the same point on the Barren River. There are four known homes within a 3-mile radius that have private wells, and several more probably exist. The closest private well is 10,000 feet away from the reclaimed lagoons (Ref. 4).

The surface water appears to be contained onsite in the sinkhole lake. If surface water were to migrate from the lake onsite it would probably flow in a northern direction and enter Jennings Creek. Jennings Creek flows northward into the Barren River downstream of the Bowling Green intake. There are no surface water intakes for 15 miles downstream of the disposal area (Ref. 15). There are no wetlands or critical habitats near the site, but the Barren River contains a federally endangered species of mussel. In addition, two federally endangered species of bats could be affected by contaminant migration into the cave system under the site(Ref. 15).

There is a softball field that is on company property and may be on top of the old lagoon site (Ref. 11). Approximately 900 people work in the plant (Ref. 10). There is a day-care center 3000 feet to the north and a school 4000 feet to the northeast of the disposal area. There is no access to the old disposal area from Industrial Road, however, there may be access from the back of the property (Ref. 11).

Eaton Corp. is located on the Pennyroyal Plain of the Mississippian Plateau region in South Central Kentucky. The terrain is karst as evidenced by the occurrence of numerous sinkholes and streamless valleys (Ref. 6). Net annual precipitation is 12 inches and recharge of the shallow aquifer is through rainfall (Refs. 6, 14).

Limestone from the Ste. Genevieve Formation is the dominant rock type of the Pennyroyal Plain (Ref. 9). The Ste. Genevieve Limestone is underlain by other members of the Meramec Series which include the St. Louis, Spergen and Warsaw Formations (Ref. 2). Solutional enlarging of conduits takes place in both the Ste. Genevieve and upper St. Louis Formations where together they contain approximately 235 feet of virtually uninterrupted carbonate rock (Refs. 3, 6). The Lost River Chert Bed and the Corydon "Ball Chert" Member of the upper St. Louis Limestone act together as an impermeable liner for the shallow karst aquifer (Ref. 6). Solution features are most extensively developed in the Ste. Genevieve Formation because it contains the purest limestone; large solution openings can yield more than 50 gallons per minute to wells (Refs. 3, 12). Depth to the water table is from 0 to 60 feet in the vicinity of the dump site (Refs. 3, 16).

The Ste. Genevieve Limestone is white to bluish-gray, partly cherty and commonly oolitic. It is medium to thick-bedded and weathers in a blocky fashion to a darker gray color (Refs. 3, 9). The St. Louis Limestone underlies the Ste. Genevieve Limestone and is the bottommost water-bearing unit encountered. This unit is light-gray to black, thin to medium bedded and contains abundant chert nodules (Refs. 3, 6).

Due to the karst geology, there are some underground rivers and cave systems in the area (Ref. 7). The Lost River enters the ground 3,000 feet southeast of the disposal site and comes out of the ground west of Bowling Green (Ref. 11).

Based on the above referenced material, the site's location in a karst area, and the enclosures, a site screening investigation of medium priority is recommended. If you have any comments or questions about this reassessment, please contact me at NUS Corporation.

Very truly yours,

Mary McDonald

Mary McDonald
Project Manager

Approved:

Greg Schank

MM/dwf

Enclosures

cc: Robert Morris

REFERENCE

1. Adams, D.M.. 1981. Plant Manager, Eaton Corporation. EPA Notification of Hazardous Waste Site. July 30.

2. Brown, R., and T. Lambert 1963. Reconnaissance of Groundwater Resources in the Mississipian Plateau Region, Kentucky. Geological Survey Water-Supply Paper 1603.

3. Brown, R., and T. Lambert, 1962. Availability of Groundwater in Allen, Barren, Edmonson, Green, Hart, Logan Metcalf, Monroe, Simpson and Warren Counties, Kentucky. USGS Hydrologic Investigations Atlas HA-32, Sheet 3 f 3.

4. Brock, B. 1987. NUS Corporation Field Log Book F4-8711-12 Bowling Green Toxic Fumes, Bowling Green KY dates of investigation: November 16 and 17, 1987.

5. Burrus, B. 1984. Kentucky Division of Waste Management Memorandum to C. Haight. Re: Uncontrolled site close out for the Eaton Corporation. March 21.

6. Crawford, N. 1987. "Agriculture and Urban Nonpoint Source Pollution Impacts on Karst Aquifers on the Pennyroyal Karst Region of Kentucky, Part 1: Hydrogeology of the Lost River Karst Groundwater Basin, Warren County, Kentucky." Report prepared for Kentucky Natural Resources and Environmental Resources and Environmental Cabinet Division of Water and Barren River Area Development District.

7. Curry, D. 1982. Kentucky Division of Waste Management. Memorandum to Carl Schroeder, Manager, Field Operations Branch, Division of Waste Management. Re: Eaton Corporation/Cutler - Hammer. December 1.

8. Edwards, S. 1984. Associate, Dames & Moore. Final Closure Certification for Eaton Corporation. October 15.

9. Geotechnical & Materials Consultants, Inc. 1982. Hydrogeologic Study of the Bowling Green Area, Warren County, Kentucky as it Relates to a Cyanide - Barium Landfill. Report prepared for Holley - Carburetor Division. February 1.

10. Morgan, S. 1979. Kentucky Division of Waste Management. Memorandum to File. March 23.

11. McDonald, M. 1988. NUS Corporation Field Log Book F4-8806-12, Eaton Corporation, Bowling Green, Kentucky. date of invest. 6-15-88

12. McGrain, P. 1983. The Geologic Story of Kentucky. Kentucky Geological Survey, ser. 11, Special Publication 8.

13. Smith, M. 1982. Project Engineer, Eaton Corporation. Memorandum to Art Curtis. Re: Closure delay for the Easton Corporation. October 20.

14. U. S. Department of Commerce, June 1968. Climatic Atlas of the United States, Washington D.C.: GPO Reprint: National Oceanic and Atmospheric Administration, 1983.

15. US Fish and Wildlife Service. "Endangered and Threatened Species." Region 4 Endangered Species Office, Atlanta, Georgia.

16. USGS. Topographic Quadrangles, 7.5 minute series. Bowling Green South, KY, 1968. Bowling Green North, KY, 1968. Hadley, KY 1973. Rockfield, KY, 1973.

17. Watkins, J. 1978. Kentucky Division of Waste Management. Memorandum to Jack McClure. Re: Cutler - Hammer. August 9.

Dames & Moore

644 Linn Street
Suite 501
Cincinnati, Ohio 45203
(513) 651-3440

October 15, 1984

Eaton Corporation
Standard Power Control Division
Bowling Green Plant
2901 Fitzgerald Drive
Bowling Green, Kentucky 42101

Attention: Mr. Mel Smith

Re: Final Closure Certification
Waste Water Settling Ponds
and Sludge Beds

Eaton Corporation
Industrial Control Division
Bowling Green, Kentucky

Dear Mel:

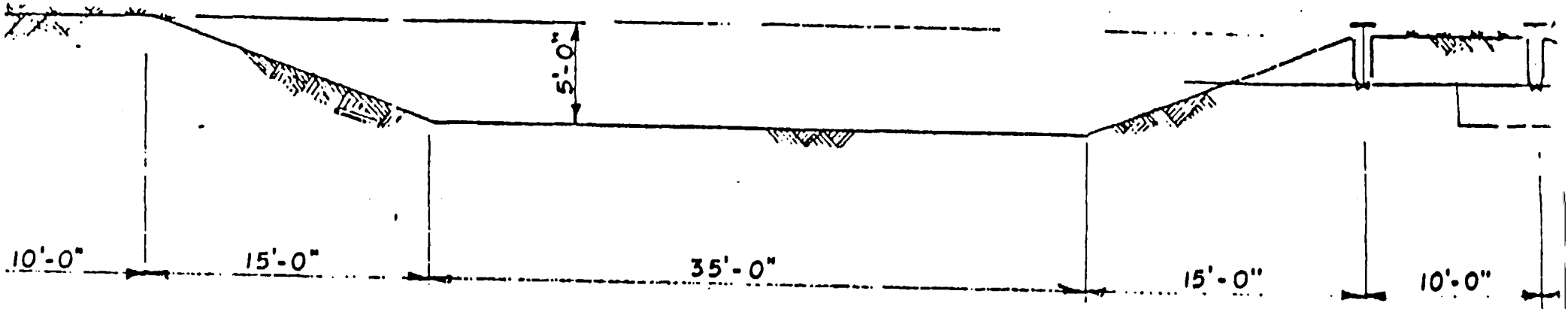
This letter serves as Dames & Moore's Final Certificat[redacted]
of Eaton Corporation's Bowling Green, Kentucky waste water set[redacted]
sludge beds as required by 401 KAR 35 and as detailed in t[redacted]
dated June 11, 1984 and the Closure Plan Revision dated June 14.

As required in the Closure Plan Revision, the follow[redacted]
provided:

1. The amount of free liquid present in the surface imp[redacted]
to closure and the dates removed are shown on Table [redacted]
natant was pumped to the Eaton internal waste tr[redacted]
treated, and discharged to the Public Owned Treat[redacted]
This was performed under a prior agreement with the P[redacted]

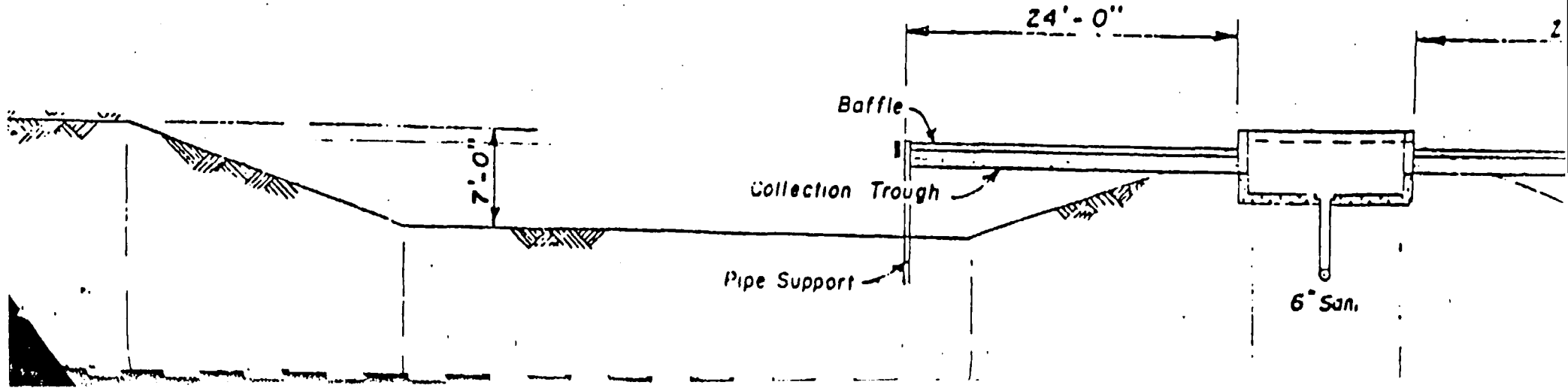
2. The amount of decontamination liquid and accumulat[redacted]
during closure is shown on Table 2. This liquid was[redacted]
the internal treatment facility, treated, and dis[redacted]
POTW.

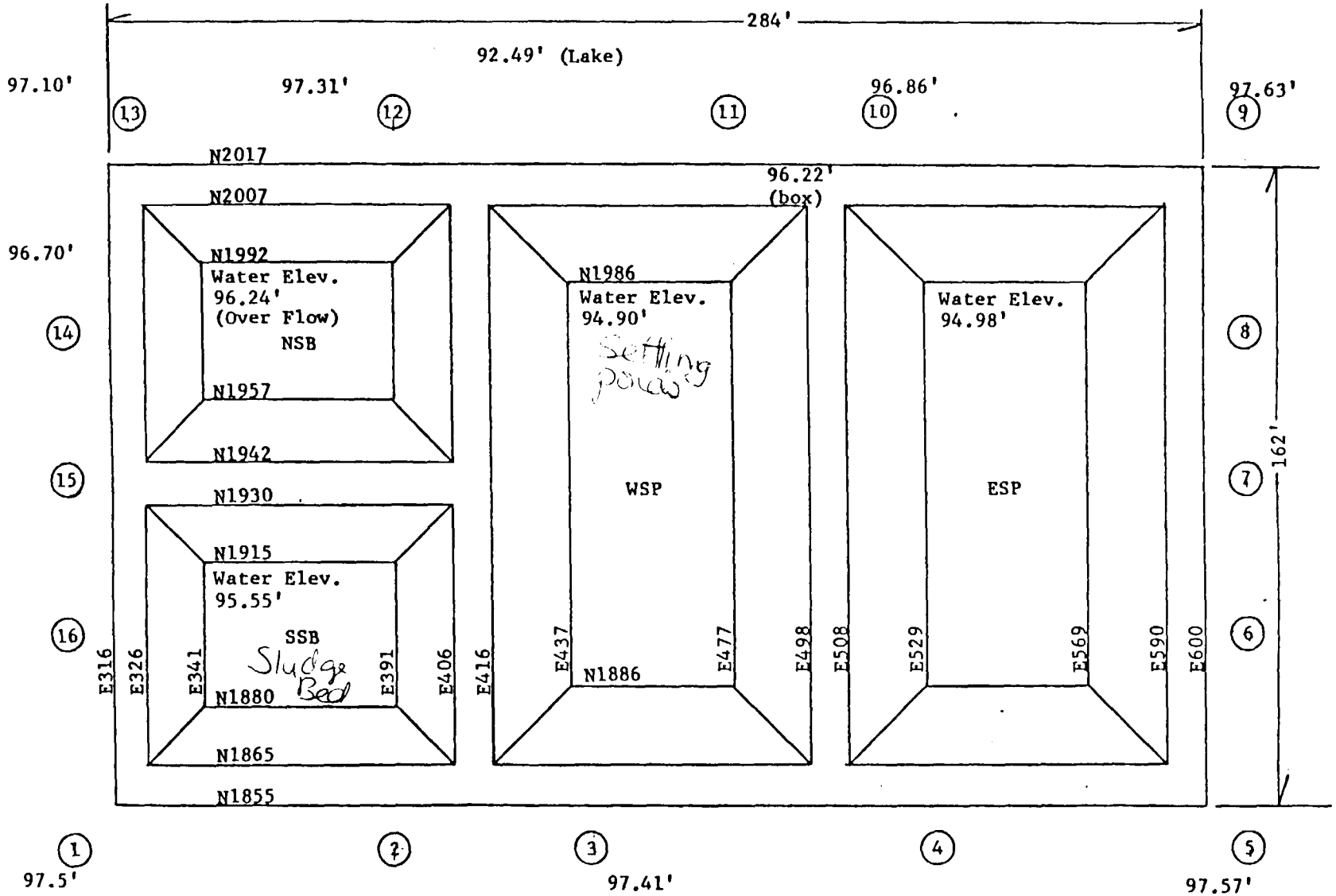
3. The amount of contaminated sludge and soil including [redacted]
and all underlying contaminated soil disposed offsi[redacted]
Table 3.



SECTION -

SCALE = 1/8" =





Elevations by Bob Adams - 12/3/82
Area enclosed by berms = 46,008 ft^2
1" precipitation = 28,678 gallons

SK 12582 - Mel Smith

x Ref. Elevation
Fire Hydrant (flag)
Assume 100'

The attached certification is provided as required to certify that closure has been done to the best of our knowledge in accordance with the approved closure plan and that all contaminated material has been removed and disposed of in an accepted hazardous waste landfill.

Underlying contaminated soil was identified by a comparison of chemical analyses of the underlying soil with background levels. Background levels for cadmium, hexavalent chromium, free cyanide and nickel were determined by compositing six samples obtained at the locations shown on Figure 1. At the completion of the excavation of all the sludge, and both the clay and artificial liner, a grid was laid out in each impoundment for collection of soil samples. Each sample consisted of 18-24 inches of soil with analyses performed at every 6 inch interval. These sampling locations are also shown on Figure 1. The background levels were determined to be as follows:

Cadmium	3.250 mg/Kg
Cyanide (free)	0.232 mg/Kg
Chromium (hexavalent)	<0.159 mg/Kg
Nickel	29.800 mg/Kg

The levels of the hazardous constituents determined in the underlying soil were compared to the background values in order to determine whether the hazardous constituents had migrated from the impoundments. This comparison was conducted by using two times the background mean as an indicator of contaminated soil. Twice the mean was utilized as an appropriate indicator of contamination based on the definition of the background composite as being a mean value in the area and to allow for laboratory variability in analyses.

Closure, including sludge stabilization and [redacted] and removal of the clay and artificial liner, was accomplished from July 11 to August 3, 1984 after which time soil sampling was conducted. An analysis of the results collected during this investigation revealed several areas where contaminated soil was encountered (North sludge bed - all sampling locations, West settling pond - Locations 1, 3 and 7, South sludge bed - Location 4).

On August 27 and 28, 1984, additional soil was excavated from the above locations to the depths required to remove the contaminated soil. An additional 14 inches was removed from the north sludge bed and an additional 6 inches was removed from the above identified areas in the west pond and the south sludge bed. The areas for excavation were determined by bisecting the distance to each sampling point with its nearest neighbor and included an equivalent thickness from the side slopes. Additional soil samples were obtained from 0-6 inches for verification that all contaminated material had been removed.

An analysis of these results indicated that not all of the contaminated soil had been excavated. On September 11, 1984, sampling was again conducted to a total depth of 24 inches at each sampling location still indicating contamination (the north sludge bed and Location 4 in the south sludge bed) to provide an indication of the depth required for further excavation. On September 27 and 28, 1984, additional soil was excavated for disposal and a final soil sampling was conducted to a total depth of 24 inches. Excavation was conducted to the following depths utilizing the nearest neighbor bisection procedure:

North Pond - Location 1 - 8 inches
Location 2 - 10 inches
Location 3 - 20 inches
Location 4 - 24 inches

South Pond - Location 4 - 16 inches

Analytical results of this final soil sampling indicated that all underlying contaminated soil had been removed. The complete chemical data is shown on Tables 4 through 27 and the volumes of soil excavated are shown on Table 3.

* * *

We have enjoyed working with you on this project and look forward to assisting you in the future. If you have any questions regarding the included information or concerning this certification, please do not hesitate to call.

Yours truly,

DAMES & MOORE

Stuart Edwards/sa

Stuart Edwards, P.E.
Associate

SE:kjg

Attachments

I, Stuart Edwards , a Registered Professional Engineer, hereby certify that visual inspections of closure activities at the Waste Water Settling Ponds and Sludge Beds, Eaton Corporation, Bowling Green, Kentucky have been performed under my direct supervision and that, to the best of my knowledge and belief, closure has been performed in accordance with the closure plan for the facility approved by the Natural Resources and Environmental Protection Cabinet, Department for Environmental Protection, of the Commonwealth of Kentucky.

Signature

October 15, 1984
Date

13439
Kentucky Professional Engineer License Number

644 Linn Street
Address
Suite 501

Cincinnati, Ohio 45203

(513) 651-3440
Phone

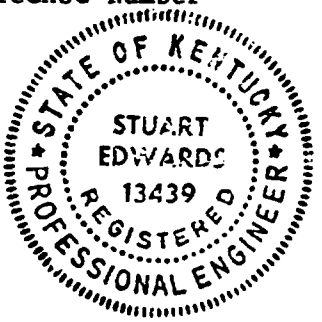


TABLE 1
SURFACE IMPOUNDMENTS - PUMPING SUMMARY[a]

DATE	SOUTH SLUDGE BED	NORTH SLUDGE BED	WEST SETTLING POND	EAST SETTLING POND
7/29/83	Alpha Air Building Inflated			
8/30/83			7160	
8/31/83			7050	
9/1/83				7380
9/8/83				6450
9/15/83				7790
10/14/83			2900	
12/10/83			13430	
2/8/84				4960
2/18/84			7640	
2/20/84		9000		
2/21/84	4000	5000		
2/23/84	3000			
3/3/84	600	600	700	600
3/13/84			2500	
3/17/84			2500	
3/21/84		2500		
4/26/84	800	800	900	
6/25/84	Alpha Air Building Removed			
7/8/84			3000	
TOTAL	8400	17900	47780	27180

[a]All of the above data is in gallons.

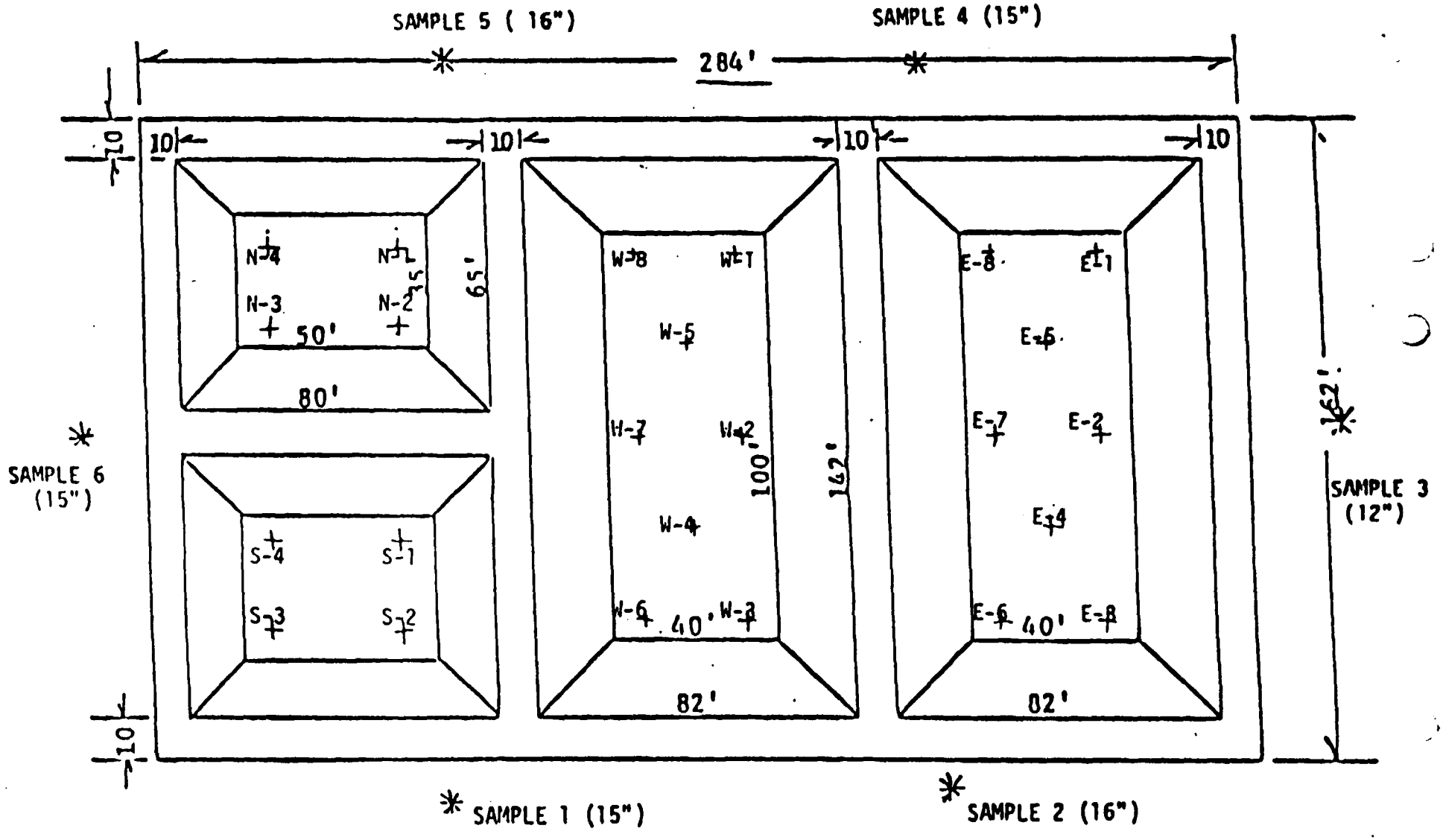


FIGURE 1 SOIL SAMPLING LOCATIONS
SCALE 1" approximately 36'

TABLE 2

LIQUIDS DISPOSED DURING CLOSURE[a]

DATE	SOUTH SLUDGE BED	NORTH SLUDGE BED	WEST SETTLING POND	EAST SETTLING POND	TRUCK DECONTAMINATION STATION
7/9/84	Cecos Project Initiated			3000	
7/11/84	2300	2200			
7/16/84	2000		3000		1000
7/17/84				500	1000
7/19/84		2750		250	
7/21/84		3000			
7/25/84		1500			
7/30/84	350				
8/28/84					3000
8/29/84	3000				
8/30/84	3300				
9/26/84	1000	1000			1000
TOTAL	11950	10450	3000	3750	6000

[a]All of the above data is in gallons.

TABLE 3

SM30216 - MANIFEST SUMMARY

DATE	SLUDGE (lbs)	CLAY LINER (lbs)
7/11/84	416860	
7/12/84	411380	
7/16/84	290700	
7/17/84	829680	
7/18/84	461886	
7/19/84	123780	853760
7/20/84	173350	454560
7/23/84	385600	645280
7/24/84	872620	671400
7/25/84	407620	465200
7/26/84	329980	
7/27/84	790840	
7/30/84	84040	914960
7/31/84	514000	317820
8/1/84	248060	366520
8/2/84	167840	625400
8/3/84		219160
8/27/84		738280
8/28/84		217020
8/29/84		432700
8/30/84		198420
9/27/84		251220
9/28/84		129180
10/11/84		320000
SUBTOTAL	6508236	7820880
	3254 tons	3910 tons
TOTAL		7164 tons

TABLE 4. EATON SOIL SAMPLE ANALYSES - NORTH POND, LOCATION ONE

DATE	DATE	SAMPLE DEPTH (INCHES)	PARAMETER (mg/Kg dry weight) CADMIUM	HEXAVALENT CHROMIUM	FREE CYANIDE	NICKEL
7-30-84	7-30-84	0-6	<0.367	<0.144	0.600	32.800
		6-8	<0.332	<0.165	<0.232	28.600
		11-13	0.646	<0.122	<0.232	27.300
		16-18	0.612	<0.144	<0.232	21.700
		22-24	1.780	<0.124	0.651	50.800
8-27-84	8-27-84	0-6	0.365	<0.086	1.170	61.800
9-11-84	9-11-84	0-6	0.350	<0.162	1.480	36.435
		6-8	0.440	<0.162	<0.232	43.090
		11-13	0.585	<0.162	<0.232	42.180
		16-18	0.780	<0.162	<0.232	72.070
9-27-84	9-27-84	0-6 (A)	4.230	<0.159	<0.232	57.900
		0-6 (B)	1.970	<0.159	<0.232	79.600

TABLE 5. EATON SOIL SAMPLE ANALYSES - NORTH POND, LOCATION TWO

			PARAMETER (mg/Kg dry weight)			
DATE	DATE	SAMPLE DEPTH (INCHES)	CADMIUM	HEXAVALENT CHROMIUM	FREE CYANIDE	NICKEL
7-30-84	7-30-84	0-6	75.500	<0.131	<0.232	210.000
		6-8	<0.343	<0.158	1.000	21.300
		11-13	0.744	<0.108	<0.232	26.300
		16-18	0.740	<0.081	<0.188	24.900
8-27-84	8-27-84	0-6	1.680	<0.093	1.890	57.600
9-11-84	9-11-84	0-6	0.335	<0.162	1.960	28.250
		6-8	0.335	<0.162	1.430	43.090
		11-13	0.615	<0.162	<0.232	26.410
		16-18	0.765	<0.162	<0.232	33.340
9-27-84	9-27-84	0-6	2.070	<0.159	<0.232	53.600

TABLE 6. EATON SOIL SAMPLE ANALYSES - NORTH POND, LOCATION THREE

DATE	DATE	SAMPLE DEPTH (INCHES)	PARAMETER (mg/Kg dry weight) CADMIUM	HEXAVALENT CHROMIUM	FREE CYANIDE	NICKEL
7-30-84	7-30-84	0-6	0.826	<0.119	55.000	36.200
		6-8	0.483	<0.127	26.000	24.700
		11-13	0.322	<0.083	15.700	37.400
		16-18	2.150	<0.084	<0.232	53.400
		22-24	1.050	<0.088	0.370	51.800
8-27-84	8-27-84	0-6	0.700	<0.098	4.110	48.100
9-11-84	9-11-84	0-6	0.340	<0.162	4.210	39.500
		6-8	0.295	<0.162	2.520	34.370
		11-13	0.325	<0.162	1.470	31.390
		16-18	0.390	<0.162	0.800	38.530
		22-24	0.405	<0.162	<0.232	26.000
9-27-84	9-27-84	0-6	1.610	<0.159	<0.232	45.800

TABLE 7. EATON SOIL SAMPLE ANALYSES - NORTH POND, LOCATION FOUR

DATE	DATE	SAMPLE DEPTH (INCHES)	PARAMETER (mg/Kg dry weight) CADMIUM	HEXAVALENT CHROMIUM	FREE CYANIDE	NICKEL
7-30-84	7-30-84	0-6	0.662	0.157	32.300	30.000
		6-8	<0.342	<0.119	5.000	24.300
		11-13	0.371	<0.098	<0.232	24.900
		16-18	1.410	<0.081	1.150	24.000
8-27-84	8-27-84	0-6	1.630	<0.106	23.700	48.600
		0-6 (DUP)	1.240	---	---	41.240
9-11-84	9-11-84	0-6	0.415	<0.162	7.700	43.200
		6-8	0.480	<0.162	12.300	36.310
		11-13	0.385	<0.162	4.670	37.140
		16-18	0.450	<0.162	9.470	35.340
		22-24	0.930	<0.162	5.880	24.290
9-27-84	9-27-84	0-6	1.520	<0.159	<0.232	42.500
		6-8	1.620	<0.159	<0.232	32.600
		11-13	1.720	<0.159	<0.232	29.600
		16-18	1.730	<0.159	<0.232	31.200
		22-24	2.120	<0.159	<0.232	25.400

TABLE 8. EATON SOIL SAMPLE ANALYSES - SOUTH POND, LOCATION ONE

DATE	SAMPLE DEPTH (INCHES)	PARAMETER (mg/Kg dry weight) CADMIUM	HEXAVALENT CHROMIUM	FREE CYANIDE	NICKEL
7-30-84	0-6	5.070	<0.140	0.029	34.200
	6-8	0.793	0.322	0.039	30.600
	11-13	0.525	<0.117	<0.156	36.700
	16-18	1.470	<0.108	<0.093	43.300
	22-24	1.330	<0.094	<0.083	41.800
9-11-84	0-6	0.650	<0.162	2.600	38.720
	6-8	0.240	<0.162	1.880	23.980
	11-13	0.225	<0.162	2.720	30.600
	16-18	0.265	<0.162	<0.232	35.930

TABLE 9. EATON SOIL SAMPLE ANALYSES - SOUTH POND, LOCATION TWO

DATE	SAMPLE DEPTH (INCHES)	PARAMETER (mg/Kg dry weight) CADMIUM	HEXAVALENT CHROMIUM	FREE CYANIDE	NICKEL
7-30-84	0-6	0.638	<0.122	0.570	51.800
	6-8	1.020	<0.127	0.128	46.900
	11-13	0.909	<0.137	<0.218	39.700
	16-18	2.180	<0.104	<0.101	70.700

TABLE 10. EATON SOIL SAMPLE ANALYSES - SOUTH POND, LOCATION THREE

DATE	SAMPLE DEPTH (INCHES)	PARAMETER (mg/Kg dry weight) CADMIUM	HEXAVALENT CHROMIUM	FREE CYANIDE	NICKEL
7-30-84	0-6	2.670	<0.146	<0.232	38.200
	6-8	4.450	<0.140	<0.232	53.400
	11-13	0.918	<0.134	0.377	61.500
	16-18	1.810	<0.138	0.128	56.900

TABLE 11. EATON SOIL SAMPLE ANALYSES - SOUTH POND, LOCATION FOUR

DATE	SAMPLE DEPTH (INCHES)	PARAMETER (mg/Kg dry weight) CADMIUM	HEXAVALENT CHROMIUM	FREE CYANIDE	NICKEL
7-30-84	0-6	11.500	<0.085	<0.232	178.000
	6-8	0.524	<0.082	0.476	29.000
	11-13	<0.451	<0.120	1.100	39.700
	16-18	0.727	<0.109	<0.097	52.600
	22-24	0.748	<0.091	<0.101	40.500
8-30-84	0-6	2.570	<0.089	2.850	48.500
9-27-84	0-6	0.496	<0.159	<0.232	68.500

TABLE 12. EATON SOIL SAMPLE ANALYSES - EAST POND, LOCATION ONE

		PARAMETER (mg/Kg dry weight)			
DATE	SAMPLE DEPTH (INCHES)	CADMIUM	HEXAVALENT CHROMIUM	FREE CYANIDE	NICKEL
7-26-84	0-6	1.360	<0.105	0.130	22.500
	6-8	1.880	<0.144	<0.171	26.300

TABLE 13. EATON SOIL SAMPLE ANALYSES - EAST POND, LOCATION TWO

		PARAMETER (mg/Kg dry weight)			
DATE	SAMPLE DEPTH (INCHES)	CADMIUM	HEXAVALENT CHROMIUM	FREE CYANIDE	NICKEL
7-26-84	0-6	0.735	<0.131	<0.150	28.400
	6-8	<0.370	<0.119	<0.209	35.100
	11-13	<0.361	<0.093	<0.162	28.200
	16-18	0.433	<0.079	<0.075	18.100

TABLE 14. EATON SOIL SAMPLE ANALYSES - EAST POND, LOCATION THREE

		PARAMETER (mg/Kg dry weight)			
DATE	SAMPLE DEPTH (INCHES)	CADMIUM	HEXAVALENT CHROMIUM	FREE CYANIDE	NICKEL
7-26-84	0-6	<0.433	<0.118	<0.113	23.400
	6-8	0.507	<0.152	<0.154	27.300
	11-13	0.927	<0.092	<0.169	28.800

TABLE 15. EATON SOIL SAMPLE ANALYSES - EAST POND, LOCATION FOUR

		PARAMETER (mg/Kg dry weight)			
DATE	SAMPLE DEPTH (INCHES)	CADMIUM	HEXAVALENT CHROMIUM	FREE CYANIDE	NICKEL
7-26-84	0-6	<0.395	<0.126	<0.157	27.600
	6-8	0.876	<0.091	<0.136	22.500
	11-13	<0.344	<0.083	<0.071	18.200
	16-18	0.991	<0.094	<0.069	21.800
	22-24	1.410	<0.088	<0.060	35.000

TABLE 16. EATON SOIL SAMPLE ANALYSES - EAST POND, LOCATION FIVE

		PARAMETER (mg/Kg dry weight)			
DATE	SAMPLE DEPTH (INCHES)	CADMIUM	HEXAVALENT CHROMIUM	FREE CYANIDE	NICKEL
7-26-84	0-6	0.480	<0.101	<0.126	29.900
	6-8	0.484	<0.122	<0.109	49.700
	11-13	0.803	<0.121	<0.183	19.900
	16-18	<0.305	<0.098	<0.060	19.900

TABLE 17. EATON SOIL SAMPLE ANALYSES - EAST POND, LOCATION SIX

		PARAMETER (mg/Kg dry weight)			
DATE	SAMPLE DEPTH (INCHES)	CADMIUM	HEXAVALENT CHROMIUM	FREE CYANIDE	NICKEL
7-26-84	0-6	0.523	<0.149	<0.160	25.400
	6-8	0.423	<0.125	<0.120	39.900
	11-13	0.369	<0.089	<0.081	19.900
	16-18	1.870	<0.089	<0.121	[illegible]

TABLE 18. EATON SOIL SAMPLE ANALYSES - EAST POND, LOCATION SEVEN

		PARAMETER (mg/Kg dry weight)			
DATE	SAMPLE DEPTH (INCHES)	CADMIUM	HEXAVALENT CHROMIUM	FREE CYANIDE	NICKEL
7-26-84	0-6	0.340	<0.114	<0.134	25.700
	6-8	0.844	<0.074	<0.074	25.900
	11-13	1.340	<0.158	<0.222	18.100

TABLE 19. EATON SOIL SAMPLE ANALYSES - EAST POND, LOCATION EIGHT

		PARAMETER (mg/Kg dry weight)			
DATE	SAMPLE DEPTH (INCHES)	CADMIUM	HEXAVALENT CHROMIUM	FREE CYANIDE	NICKEL
7-26-84	0-6	0.407	<0.119	<0.134	26.800
	6-8	0.604	<0.116	<0.185	26.500
	11-13	1.380	<0.062	<0.075	31.400

TABLE 20. EATON SOIL SAMPLE ANALYSES - WEST POND, LOCATION ONE

DATE	SAMPLE DEPTH (INCHES)	PARAMETER (mg/Kg dry weight) CADMIUM	HEXAVALENT CHROMIUM	FREE CYANIDE	NICKEL
7-26-84	0-6	8.590	<0.109	0.349	41.400
	6-8	0.576	1.145	<0.125	32.100
	11-13	0.320	<0.103	<0.202	31.400
	16-18	<0.246	<0.096	<0.201	17.300
	22-24	<0.365	<0.116	<0.075	23.300
8-29-84	0-6	1.840	<0.110	<0.103	51.500
	0-6 (DUP)	1.640	---	---	48.330

TABLE 21. EATON SOIL SAMPLE ANALYSES - WEST POND, LOCATION TWO

DATE	SAMPLE DEPTH (INCHES)	PARAMETER (mg/Kg dry weight) CADMIUM	HEXAVALENT CHROMIUM	FREE CYANIDE	NICKEL
7-26-84	0-6	<0.364	<0.082	<0.208	19.300
	6-8	<0.450	<0.130	<0.150	32.300
	11-13	<0.402	<0.109	<0.074	29.000

TABLE 22. EATON SOIL SAMPLE ANALYSES - WEST POND, LOCATION THREE

		PARAMETER (mg/Kg dry weight)			
DATE	SAMPLE DEPTH (INCHES)	CADMIUM	HEXAVALENT CHROMIUM	FREE CYANIDE	NICKEL
7-26-84	0-6	17.800	<0.085	0.138	78.600
	6-8	0.469	<0.139	<0.152	31.200
	11-13	<0.452	<0.162	<0.157	25.400
	16-18	<0.367	<0.125	<0.213	33.000
	22-24	<0.286	<0.100	<0.075	25.300
8-29-84	0-6	0.313	<0.096	<0.081	48.700

TABLE 23. EATON SOIL SAMPLE ANALYSES - WEST POND, LOCATION FOUR

		PARAMETER (mg/Kg dry weight)			
DATE	SAMPLE DEPTH (INCHES)	CADMIUM	HEXAVALENT CHROMIUM	FREE CYANIDE	NICKEL
7-26-84	0-6	0.463	<0.088	0.180	32.900
	6-8	0.521	<0.106	<0.169	33.200
	11-13	0.365	<0.121	<0.140	17.600
	16-18	2.410	<0.121	<0.075	38.000

TABLE 26. EATON SOIL SAMPLE ANALYSES - WEST POND, LOCATION SEVEN

DATE	SAMPLE DEPTH (INCHES)	PARAMETER (mg/Kg dry weight) CADMIUM	HEXAVALENT CHROMIUM	FREE CYANIDE	NICKEL
7-26-84	0-6	<0.302	2.020	<0.145	18.700
	6-8	0.428	<0.129	<0.160	23.100
	11-13	<0.333	<0.096	<0.168	21.300
	16-18	<0.326	<0.139	<0.201	20.600
8-29-84	0-6	0.257	<0.099	<0.093	46.900

TABLE 27. EATON SOIL SAMPLE ANALYSES - WEST POND, LOCATION EIGHT

DATE	SAMPLE DEPTH (INCHES)	PARAMETER (mg/Kg dry weight) CADMIUM	HEXAVALENT CHROMIUM	FREE CYANIDE	NICKEL
7-26-84	0-6	<0.409	<0.123	<0.152	26.600
	6-8	<0.425	<0.137	<0.191	31.100
	11-13	<0.395	<0.156	<0.173	32.800
	16-18	<0.300	<0.076	<0.193	17.400

#84-047

CHARLOTTE E. BALDWIN
SECRETARY

MARTHA LAYNE COLLINS
GOVERNOR

COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
FORT BOONE PLAZA
18 REILLY ROAD
FRANKFORT, KENTUCKY 40601

July 5, 1984

Report No: B02-760
SA No: 84-1075

TO: Division of Waste Management
#18 Reilly Road, Fort Boone Plaza
Frankfort, Kentucky 40601

Re: Eaton Corporation
Bowling Green, Kentucky

ATTN: Pat Haight CPH

FROM: William E. Davis, Director WED
Division of Environmental Services

Sample Collector: Solid Tek

Sample Identification: WSP-A

REPORT OF ANALYSIS

Received: 04/27/84 Started: 04/27/84 Finished: 06/29/84

Results:

PARAMETER	CONCENTRATION (mg/l)
Cyanide, Total	40.1
Cyanide Amenable	1.1

#84-047

CHARLOTTE E. BALDWIN
SECRETARY

MARTHA LAYNE COLLINS
GOVERNOR

COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
FORT BOONE PLAZA
18 REILLY ROAD
FRANKFORT, KENTUCKY 40601

July 5, 1984

Report No: B84-761
SA No: 84-1076

TO: Division of Waste Management
#18 Reilly Road, Fort Boone Plaza
Frankfort, Kentucky 40601

Re: Eaton Corporation
Bowling Green, Kentuck

ATTN: Pat Haight CPH

FROM: William E. Davis, Director WED
Division of Environmental Services

Sample Collector: Solid Tek

Sample Identification: SSB-C

REPORT OF ANALYSIS

Received: 04/27/84 Started: 04/27/84 Finished: 06/29/84

Results:

PARAMETER	CONCENTRATION (mg/l)
Cyanide, Total	53.1
Cyanide Amenable	<1

#84-047

CHARLOTTE E. BALDWIN
SECRETARY

MARTHA LAYNE COLLINS
GOVERNOR

COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION

FORT BOONE PLAZA
18 REILLY ROAD
FRANKFORT, KENTUCKY 40601

July 5, 1984

Report No: B02-763
SA No: 84-1078

TO: Division of Waste Management
#18 Reilly Road, Fort Boone Plaza
Frankfort, Kentucky 40601

Re: Eaton Corporation
Bowling Green, Kentuck

ATTN: Pat Haight CPH

FROM: William E. Davis, Director WED
Division of Environmental Services

Sample Identification: NSB-C

REPORT OF ANALYSIS

Received: 04/27/84 Started: 04/27/84 Finished: 06/29/84

Results:

PARAMETER	CONCENTRATION (mg/l)
Cyanide, Total	87.8
Cyanide Amenable	59.1

#84-047

CHARLOTTE E. BALDWIN
SECRETARY

MARTHA LAYNE COL
GOVERNOR

COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION

FORT BOONE PLAZA
18 REILLY ROAD
FRANKFORT, KENTUCKY 40601

RECEIVED
JUL 1984
DIVISION OF
WASTE MANAGEMENT

July 5, 1984

Report No: B02-761
SA No: 84-1076

TO: Division of Waste Management
#18 Reilly Road, Fort Boone Plaza
Frankfort, Kentucky 40601

Re: Eaton Corporatio
Bowling Green, K

ATTN: Pat Haight CPH

FROM: William E. Davis, Director WED
Division of Environmental Services

Sample Collector: Solid Tek

Sample Identification: SSB-C

REPORT OF ANALYSIS

Received: 04/27/84 Started: 04/27/84 Finished: 06/29/84

Results:

PARAMETER	CONCENTRATION (mg/l)
Cyanide, Total	53.1
Cyanide Amenable	<1

CHARLOTTE E. BALDWIN
SECRETARY

MARTHA LAYNE COLLINS
GOVERNOR

COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
FORT BOONE PLAZA
18 REILLY ROAD
FRANKFORT, KENTUCKY 40601

Report No: B02-748
SA No: 84-635

TO: Division of Waste Management
#18 Reilly Road, Fort Boone Plaza
Frankfort, Kentucky 40601

Re: Eaton Corporation
Bowling Green, Kentucky

ATTN: Pat Haight

FROM: William E. Davis, Director WED
Division of Environmental Services

DATE: April 17, 1984

Sample Collector: Douglas Wagner

Sample Identification: WSP Composite

REPORT OF ANALYSIS

Date:
Received: 03/13/84 Started: 03/13/84 Finished: 04/17/84

Results:

PARAMETER	CONCENTRATION
Cyanide, Total	150.mg/kg
Cyanide, Free	134.mg/kg
Cyanide, Distilled Water Leach	0.018mg/l
Cyanide, Reactive at ph 4.5	<1.00mg/kg
Total Recoverable	
Cadmium	563.mg/kg
Chromium	1140.mg/kg
Nickel	1990.mg/kg
EP Leachate	
Cadmium	0.070mg/l
Chromium	0.030mg/l
Nickel	0.20mg/l

cc: George Gilbert

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

EPA

I. IDENTIFICATION
01 STATE: KY | 02 SITE NUMBER: D098950306

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER				
Eaton Corp, Bowling Green Plt.	P.O. Box 1158, 2901 Fitzgerald Ind. Drive				
03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Bowling Green	KY	42101	Warren	114	
09 COORDINATES LATITUDE: 36°57'03.0"	LONGITUDE: 086°29'00.0"				

10 DIRECTIONS TO SITE (Starting from nearest public road)
From Bowling Green follow Creson Drive to Emmett Rd. Take a left on to Emmett Road. Approximately 1/4 mile down Emmett Rd. take a right on to Industrial Drive, facility is about 1/2 mile down Industrial Drive on the right.

III. RESPONSIBLE PARTIES

01 OWNER (If known)	02 STREET (Business, mailing, residential)		
Eaton Corporation	100 Erieview Plaza		
03 CITY	04 STATE	05 ZIP CODE	06 TELEPHONE NUMBER
Cleveland	Oh	44114	(216) 523-2527
07 OPERATOR (If known and different from owner)	08 STREET (Business, mailing, residential)		
Mel Smith	P.O. Box 1158, 2901 Fitzgerald Ind. Drive		
09 CITY	10 STATE	11 ZIP CODE	12 TELEPHONE NUMBER
Bowling Green	KY	42101	(502) 782-1555

13 TYPE OF OWNERSHIP (Check one)
☑ A. PRIVATE ☐ B. FEDERAL: _____ (Agency name) ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL
☐ F. OTHER: _____ (Specify) ☐ G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)
☐ A. RCRA 3001 DATE RECEIVED: ___/___/___ (MONTH DAY YEAR) ☐ B. UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED: ___/___/___ (MONTH DAY YEAR) ☑ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION
☑ YES DATE 2/15/84 (MONTH DAY YEAR) ☐ NO

BY (Check all that apply)
☐ A. EPA ☐ B. EPA CONTRACTOR ☑ C. STATE ☐ D. OTHER CONTRACTOR
☐ E. LOCAL HEALTH OFFICIAL ☐ F. OTHER: _____ (Specify)
CONTRACTOR NAME(S): _____

02 SITE STATUS (Check one)
☑ A. ACTIVE ☐ B. INACTIVE ☐ C. UNKNOWN

03 YEARS OF OPERATION
_____ (BEGINNING YEAR) _____ (ENDING YEAR) ☑ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED
Electroplating wastes, water-based paint wastes, paint wastes, used lubricating oil, and used chlorinated solvents.

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION
This facility has four lagoons that contain electroplating wastewater treatment sludge. These lagoons are planned for closure in July, 1984.

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents)
☐ A. HIGH (Inspection required promptly) ☐ B. MEDIUM (Inspection required) ☐ C. LOW (Inspect on time available basis) ☑ D. NONE (No further action needed, complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)			03 TELEPHONE NUMBER
Jack Watkins	KYDREPC, Columbia Field Office			(502) 384-4734
04 PERSON RESPONSIBLE FOR ASSESSMENT	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NUMBER	08 DATE
Robert Burns	Env. Prot.	Waste Mgt.	(502) 564-6716	3/19/84 (MONTH DAY YEAR)

EPA FORM 2070-12 (7-81)

CUTLER • HAMMER

POWER DISTRIBUTION AND CONTROL DIVISION

P. O. BOX 1158
2901 FITZGERALD INDUSTRIAL DRIVE
BOWLING GREEN, KY. 42101
PHONE: 502-782-1555

September 22, 1980

Mrs. Pat Haight
Director of Compliance
Div. of Hazardous Material &
Waste Management
Pine Hill Plaza
1121 Louisville Road
Frankfort, Kentucky 40601

Dear Mrs. Haight:

This is in regard to my letter to you dated 8-26-80 in which a permit under the Variance procedure was requested, and Mr. Blair's reply dated 9-4-80 in which this request was granted until 11-19-80 on the basis that the present storage and treatment facilities will be eliminated by then. As noted in our telephone discussion on September 17, we simply cannot eliminate our storage facility by that time. As far as treatment is concerned, it will continue to be an on-going operation unless at some future time the interpretation of the definition of "treatment" is revised so as to exclude our treatment system.

In an effort to present a complete picture of our hazardous wastewater treatment system and improvement programs now in progress, I would like to go back to the point in time when it became operational.

Our original (1964) electroplating wastewater pretreatment system consisted of integrated closed-loops for the treatment of chromium and copper (acid) plating solutions; zinc (alkaline) plating solution; silver, zinc and copper (cyanide) plating solutions; and floor spill batch treatment. The resulting "spent" solutions were in turn treated to minimize toxicity and to induce the precipitation of metal oxides and hydroxides. They were then piped outside the plant to sludge beds, settling basins and ultimately flowed to a ground water discharge under a permit issued by the Division of Water Quality, State of Kentucky. At this point in time, the system still functions in this manner, and the sludge thus accumulated has been disposed of in a manner consistent with applicable rules and regulations. Now, in what we call our "Phase I" project, all of the in-plant treatment equipment which was a part of the 1964 installation is being replaced with new, and up-dated equipment. In addition, a new

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

EPA

I. IDENTIFICATION
01 STATE: KY | 02 SITE NUMBER: D098950306

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER				
Eaton Corp, Bowling Green Plt.	P.O. Box 1158, 2901 Fitzgerald Ind. Drive				
03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Bowling Green	KY	42101	Warren	114	
09 COORDINATES LATITUDE	LONGITUDE				
36°57'03.0"	086°29'00.0"				

10 DIRECTIONS TO SITE (Starting from nearest public road)
From Bowling Green follow Creson Drive to Emmett Rd. Take a left on to Emmett Road. Approximately ¼ mile down Emmett Rd. take a right on to Industrial Drive, facility is about ½ mile down Industrial Drive on the right.

III. RESPONSIBLE PARTIES

01 OWNER (If known)	02 STREET (Business, mailing, residential)		
Eaton Corporation	100 Erieview Plaza		
03 CITY	04 STATE	05 ZIP CODE	06 TELEPHONE NUMBER
Cleveland	Oh	44114	(216) 523-2527
07 OPERATOR (If known and different from owner)	08 STREET (Business, mailing, residential)		
Mel Smith	P.O. Box 1158, 2901 Fitzgerald Ind. Drive		
09 CITY	10 STATE	11 ZIP CODE	12 TELEPHONE NUMBER
Bowling Green	KY	42101	(502) 782-1555

13 TYPE OF OWNERSHIP (Check one)
☑ A. PRIVATE ☐ B. FEDERAL: _____ (Agency name) ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL
☐ F. OTHER: _____ (Specify) ☐ G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)
☐ A. RCRA 3001 DATE RECEIVED: ___/___/___ (MONTH DAY YEAR) ☐ B. UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED: ___/___/___ (MONTH DAY YEAR) ☑ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION
☑ YES ☐ NO DATE 2/15/84 (MONTH DAY YEAR)
BY (Check all that apply)
☐ A. EPA ☐ B. EPA CONTRACTOR ☑ C. STATE ☐ D. OTHER CONTRACTOR
☐ E. LOCAL HEALTH OFFICIAL ☐ F. OTHER: _____ (Specify)
CONTRACTOR NAME(S): _____

02 SITE STATUS (Check one)
☑ A. ACTIVE ☐ B. INACTIVE ☐ C. UNKNOWN

03 YEARS OF OPERATION
_____ (BEGINNING YEAR) _____ (ENDING YEAR) ☑ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED
Electroplating wastes, water-based paint wastes, paint wastes, used lubricating oil, and used chlorinated solvents.

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION
This facility has four lagoons that contain electroplating wastewater treatment sludge. These lagoons are planned for closure in July, 1984.

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents)
☐ A. HIGH (Inspection required promptly) ☐ B. MEDIUM (Inspection required) ☐ C. LOW (Inspect on site available basis) ☑ D. NONE (No further action needed, complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)		03 TELEPHONE NUMBER
Jack Watkins	KYDREPC, Columbia Field Office		(502) 384-423-
04 PERSON RESPONSIBLE FOR ASSESSMENT	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NUMBER	08 DATE
Robert Burns	Env. Prot.	Waste Mgt.	(502) 564-6716	3/19/84 (MONTH DAY YEAR)

EPA FORM 2070-12 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
KY	D098950306

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- ☐ A. SOLID
- ☐ B. POWDER, FINES
- ☐ C. SLUDGE
- ☐ D. OTHER — NA (Specify)
- ☐ E. SLURRY
- ☐ F. LIQUID
- ☐ G. GAS

02 WASTE QUANTITY AT SITE

Measures of waste quantities must be independent

TONS: NA

CUBIC YARDS:

NO. OF DRUMS:

03 WASTE CHARACTERISTICS (Check all that apply)

- ☐ A. TOXIC
- ☐ B. CORROSIVE
- ☐ C. RADIOACTIVE
- ☐ D. PERSISTENT
- ☐ E. SOLUBLE
- ☐ F. INFECTIOUS
- ☐ G. FLAMMABLE
- ☐ H. IGNITABLE
- ☐ I. HIGHLY VOLATILE
- ☐ J. EXPLOSIVE
- ☐ K. REACTIVE
- ☐ L. INCOMPATIBLE
- ☑ M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS			
PSD	PESTICIDES	NA		
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
	NA				

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

State files

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION
01 STATE: KY | 02 SITE NUMBER: D098950306

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☐ A. GROUNDWATER CONTAMINATION
03 POPULATION POTENTIALLY AFFECTED: NA
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ B. SURFACE WATER CONTAMINATION
03 POPULATION POTENTIALLY AFFECTED: NA
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ C. CONTAMINATION OF AIR
03 POPULATION POTENTIALLY AFFECTED: NA
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS
03 POPULATION POTENTIALLY AFFECTED: NA
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ E. DIRECT CONTACT
03 POPULATION POTENTIALLY AFFECTED: NA
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ F. CONTAMINATION OF SOIL
03 AREA POTENTIALLY AFFECTED: NA (Acres)
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ G. DRINKING WATER CONTAMINATION
03 POPULATION POTENTIALLY AFFECTED: NA
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ H. WORKER EXPOSURE/INJURY
03 WORKERS POTENTIALLY AFFECTED: NA
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ I. POPULATION EXPOSURE/INJURY
03 POPULATION POTENTIALLY AFFECTED: NA
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION
01 STATE: KY | 02 SITE NUMBER: D098950306

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☐ J. DAMAGE TO FLORA — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION: NA

01 ☐ K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION (Include name(s) of species): NA

01 ☐ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION: NA

01 ☐ M. UNSTABLE CONTAINMENT OF WASTES (Spills/runoff/standing liquids/leaking drums) — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: NA — 04 NARRATIVE DESCRIPTION

01 ☐ N. DAMAGE TO OFFSITE PROPERTY — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION: NA

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION: NA

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION: NA

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS
NA

III. TOTAL POPULATION POTENTIALLY AFFECTED: _____

IV. COMMENTS

V. SOURCES OF INFORMATION (Cite specific references, e. g., state files, sample analysis, reports)

EPA

POTENTIAL HAZARDOUS WASTE SITE — TENTATIVE DISPOSITION

REGION | SITE NUMBER: IV | KYD000616089

File this form in the regional Hazardous Waste Log File and submit a copy to: U.S. Environmental Protection Agency, Site Tracking System, Hazardous Waste Enforcement Task Force (EN-335), 401 M St., SW. Washington, DC 20460.

I. SITE IDENTIFICATION

A. SITE NAME	B. STREET	
Cdt Ind. Oper. Co. Holley Carb Plt	11th + Vine St	
C. CITY	**D. STATE**	**E. ZIP CODE**
Bowling Green	KY	42101

II. TENTATIVE DISPOSITION

Indicate the recommended action(s) and agency(ies) that should be involved by marking 'X' in the appropriate boxes.

RECOMMENDATION	MARK 'X'	ACTION AGENCY: EPA	STATE	LOCAL	PRIVATE
A. NO ACTION NEEDED -- NO HAZARD					
B. INVESTIGATIVE ACTION(S) NEEDED *(If yes, complete Section III.)*	X	X			
C. REMEDIAL ACTION NEEDED *(If yes, complete Section IV.)*					
D. ENFORCEMENT ACTION NEEDED *(If yes, specify in Part E whether the case will be primarily managed by the EPA or the State and what type of enforcement action is anticipated.)*					

E. RATIONALE FOR DISPOSITION

PA done in '82 said that Holley Carb. was in the process of developing a cleanup plan.

F. INDICATE THE ESTIMATED DATE OF FINAL DISPOSITION *(mo., day, & yr.)*	G. IF A CASE DEVELOPMENT PLAN IS NECESSARY, INDICATE THE ESTIMATED DATE ON WHICH THE PLAN WILL BE DEVELOPED *(mo., day, & yr.)*

H. PREPARER INFORMATION

1. NAME	2. TELEPHONE NUMBER	3. DATE *(mo., day, & yr.)*

III. INVESTIGATIVE ACTIVITY NEEDED

A. IDENTIFY ADDITIONAL INFORMATION NEEDED TO ACHIEVE A FINAL DISPOSITION.

Find out if site has been cleaned or if there is any information since 1982.

B. PROPOSED INVESTIGATIVE ACTIVITY *(Detailed Information)*

1. METHOD FOR OBTAINING NEEDED ADDITIONAL INFO.	2. SCHEDULED DATE OF ACTION *(mo, day, & yr)*	3. TO BE PERFORMED BY *(EPA, Contractor, State, etc.)*	4. ESTIMATED MANHOURS	5. REMARKS
a. TYPE OF SITE INSPECTION (1)				
(2)				
(3)				
b. TYPE OF MONITORING (1)				
(2)				
c. TYPE OF SAMPLING (1)				
(2)				

EPA Form T2070-4 (10-79)

Continue On Reverse

CHARLOTTE E. BALDWIN
SECRETARY

MARTHA LAYNE COLLINS
GOVERNOR

COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
FORT BOONE PLAZA
18 REILLY ROAD
FRANKFORT, KENTUCKY 40601

Report No: B02-751
SA No: 84-638

TO: Division of Waste Management
#18 Reilly Road, Fort Boone Plaza
Frankfort, Kentucky 40601

Re: Eaton Corporation
Bowling Green, Kentucky

ATTN: Pat Haight

FROM: William E. Davis, Director WED
Division of Environmental Services

DATE: April 17, 1984

Sample Collector: Douglas Wagner

Sample Identification: NSB Composite

REPORT OF ANALYSIS

Date:
Received: 03/13/84 Started: 03/13/84 Finished: 04/17/84

Results:

PARAMETER	CONCENTRATION
Cyanide, Total	226.mg/kg
Cyanide, Free	148.mg/kg
Cyanide, Distilled Water Leach	0.359mg/l
Cyanide, Reactive at ph 4.5	1.29mg/kg
Total Recoverable	
Cadmium	826.mg/kg
Chromium	1980.mg/kg
Nickel	2510.mg/kg
EP Leachate	
Cadmium	0.24mg/l
Chromium	0.510mg/l
Nickel	0.31mg/l

cc: George Gilbert

CHARLOTTE E. BALDWIN
SECRETARY

MARTHA LAYNE COLLINS
GOVERNOR

COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
FORT BOONE PLAZA
18 REILLY ROAD
FRANKFORT, KENTUCKY 40601

Report No: B02-750
SA No: 84-637

TO: Division of Waste Management
#18 Reilly Road, Fort Boone Plaza
Frankfort, Kentucky 40601

Re: Eaton Corporation
Bowling Green, Kentucky

ATTN: Pat Haight

FROM: William E. Davis, Director WED
Division of Environmental Services

DATE: April 17, 1984

Sample Collector: Douglas Wagner

Sample Identification: EPS Composite

REPORT OF ANALYSIS

Date:
Received: 03/13/84 Started: 03/13/84 Finished: 04/17/84

Results:

PARAMETER	CONCENTRATION
Cyanide, Total	77.9mg/kg
Cyanide, Free	56.5mg/kg
Cyanide, Distilled Water Leach	0.095mg/l
Cyanide, Reactive at ph 4.5	<0.98mg/kg
Total Recoverable	
Cadmium	367.mg/kg
Chromium	926.mg/kg
Nickel	1350.mg/kg
EP Leachate	
Cadmium	0.230mg/l
Chromium	0.360mg/l
Nickel	0.70mg/l

cc: George Gilbert

M&T CHEMICALS INC.
FUNCTIONAL PLASTICS DIVISION
5121 SAN FERNANDO ROAD WEST
LOS ANGELES, CALIFORNIA 90039
(213) 247-6210
TWX (910) 497-2060

FURANE® PRODUCTS

April 17, 1980

CUTLER-HAMMER
P. O. Box 1158
Bowling Green, KY 42101

Attn: Mr. Mel H. Smith

Dear Mr. Smith:

Enclosed are copies of Material Safety Data Sheets and a Technical Bulletin on Epibond 153A/9814.

Neither of these compounds contain free metals and recommended methods of disposal are shown on the MSDS.

Please call if you have further questions.

Cordially,

M&T CHEMICALS, INC.
Furane Products Division

Ken Cressy
Ken Cressy
Technical Services Supervisor

KC/bp

Enc.

cc: B. Walker

PREMIX, INC.

P. O. BOX 281

NORTH KINGSVILLE, OHIO 44068

PHONE (216) 224-2181

Gentlemen:

Premi-Glas®, Premi-Ject® and Vibrin-Mat® molding compounds do not exhibit any hazardous characteristics as defined in Sub-part C, part 261.20 - 261.24 of the RCRA Act, nor are any of these compounds listed on the hazardous materials chart of Sub-part D, part 261.33.

Some concern was raised due to the flammability of many of the raw materials listed to produce our compounds. Therefore, a thorough ignitability analysis was performed by an independent laboratory recognized by EPA.

The results of this testing has indicated that the uncured compounds do not exhibit the characteristic of ignitability as described in Sub-part C, part 261.21 of the RCRA Act, nor do these compounds fall under the classification of a flammable solid as described by the U.S. Department of Transportation in Sec. 173.300 (b) of CFR 49.

Test analysis results are available upon request.

Yours truly,

PREMIX, INC.

Debbi Parshall
Environmental Specialist

KENTUCKY DEPARTMENT FOR NATURAL RESOURCES
AND ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS MATERIAL AND WASTE MANAGEMENT

Application for Permission to Dispose
of Special and/or Hazardous Waste at
a Permitted Disposal Site

FOR AGENCY USE

Received _____
Issued _____
Expires _____
Site No. _____
Approved _____

GENERAL INFORMATION

A. Disposal Site: Butler County (name) 016.02 (site no.)

Butler (county) (location)

B.

	Waste Hauler	Waste Generator
Co. Name/Indiv. Name:	Monarch Environmental	EATON Corp. - Bowling Green Plant
Street:	2560 Scottsville Road	2901 Industrial Drive
City, State:	Bowling Green, Ky 42101	Bowling Green, Ky 42101
Telephone:	(502) 781-0781	(502) 782-1555
Driver's Name:		Person in Charge: M. H. Smith

WASTE CHARACTERISTICS

A. Source (Indicate S.I.C. Industry Classification 3622 .)

B. Description (Descriptive or Common)
1. Indicate Waste Name: Cured resin- SOLID.
2. Waste is: Liquid ___, Solid X, Semi-Solid ___, Other ___ (check one)
3. Percent of Solids by Volume: 100
4. Expected Volume is: 25 gallons ___ or Cubic Yards X per year.

C. Properties
1. Acidity-Alkalinity: High ___ Moderate ___ Low ___ None X
As: HCL ___ H_2SO_4 ___ HNO_3 ___ NaOH ___
NH_4OH ___ Other (list) _____
2. Volatility: High ___ Moderate ___ Low ___ None X
3. Toxicity (dermal): High ___ Moderate ___ Low X None ___
4. Toxicity (inhalation): High ___ Moderate ___ Low ___ None X
5. Toxicity (ingestion): High ___ Moderate ___ Low ___ None X
6. Other (describe): _____

D. Analyses
1. Waste is: Organic X Inorganic ___ Mixture ___ (check one)
2. List organic components (% by weight):
Epoxy-amide polymer 50 % _____ %
_____ % _____ %

3. CONCENTRATIONS (mg/L UNLESS INDICATED) (attached original analysis report).

	DISSOLVED	SUSPENDED
As	Nony	Nony
Cd		
Cr		
CN		
Cu		
Hg		
Ni		
Pb		
Zn		

Total Solids (% by Weight)	100%
Total Dissolved Solids	na
Acidity (%)	na
Alkalinity (%)	na
Flash Point (°F)	na
pH	na
Alpha Radiation (pCi/l)	none
Phenols	none
PCBs	none
Asbestos	none

Other: This column/telconversation w/Frost - 9/25/80 (of Sterling Corp.)

II. METHOD OF DISPOSAL

A. Waste will be pre-treated/neutralized prior to disposal. Yes ___ No X (If yes, describe):

B. Is waste to be disposed of in containers? (If so, explain method):
Drum ___ Bag ___ Box ___ Cylinder ___ Loose ___ (check which)
xx 1 Gallon cans

C. Waste disposal will be accomplished by: (check one or more)

1. Direct sanitary landfill (co-mixed in place)	___
2. Injection into a completed landfill cell	___
3. Surface absorption into a completed cell	___
4. Segregation to an isolated cell	___
5. Land spreading/discing	___
6. Buried in original container	X
7. Other (describe)	___

V. SIGNATURE OF APPLICANT (or Authorized Agent)

DATE:

SIGNATURE OF ANALYZING CHEMIST OR PROFESSIONAL ENGINEER

ADDRESS:

TELEPHONE:

DATE:

O.K.

CUTLER • HAMMER

POWER DISTRIBUTION AND CONTROL DIVISION

P. O. BOX 1158
2901 FITZGERALD INDUSTRIAL DRIVE
BOWLING GREEN, KY. 42101
PHONE: 502-782-1555

December 9, 1980

Mr. Jack Watkins
Environmental Inspector
Kentucky Bureau of Environmental Protection
Division of Hazardous Material & Waste Management
P. O. Box 2150
Bowling Green, Kentucky 42101

Dear Mr. Watkins:

This is in regard to our discussion on Thursday, December 4, concerning the disposal of 7000 lbs. of PREMIX 3100-18 (Eaton 690-401) polyester molding material which has outlived its shelf life.

Specifically, your consideration for disposal of this material in the Butler County landfill site will be appreciated. Based on the information contained in the attached letter from PREMIX, I feel that disposal in this manner should be acceptable.

A sample of the material is attached.

Sincerely,

EATON CORPORATION

M. H. Smith
Sr. Project Engineer

wg

cc: J. Hankins
HWM program file (PREMIX)

attachments: PREMIX letter (3 pages)
Resin Sample

CUTLER • HAMMER

POWER DISTRIBUTION AND CONTROL DIVISION

P. O. BOX 1158
2901 FITZGERALD INDUSTRIAL DRIVE
BOWLING GREEN, KY. 42101
PHONE: 502-782-1555

December 9, 1980

Mr. Jack Watkins
Environmental Inspector
Kentucky Bureau of Environmental Protection
Division of Hazardous Material & Waste Management
P.O. Box 2150
Bowling Green, Kentucky 42101

Dear Mr. Watkins:

This is in reference to our discussion on Thursday, December 4, regarding the proposed disposal of 7000 lbs. of Glastic 1423AD, (Eaton 690-397) which has outlived its shelf life.

Specifically, we would appreciate your consideration for disposal of this material in the Butler County sanitary landfill site.

You will note that in the attached letter from Glastic, Mr. Swanson inidicates that Glastic "in its polymerized form is an insoluble, non-hazardous solid". While his specific reference is to Glastic 1412 AM (another Glastic product used by Eaton), its characteristics are similar to those of 1423 AD as far as disposal in the polymerized form is concerned.

A sample of this waste material is attached.

Sincerely,

EATON CORPORATION

M. H. Smith
Sr. Project Engineer

wg

cc: Jim Hankins
HWM Program File (Glastic)

attachments: Glastic letter (2 pages)
Resin sample

GLASTIC
A Monogram Industry
The Glastic Company
4321 Glenridge Rd. • Cleveland, Ohio 44121 • (216) 486-0100 TWX: 810-421-8309

October 13, 1980

Mr. M. H. Smith
Senior Project Engineer
Power Distribution and Control Division
Cutler-Hammer Products
Eaton Corporation
Post Office Box 1158
2901 Fitzgerald Industrial Drive
Bowling Green, Kentucky 42101

Dear Mr. Smith:

With respect to your letter of September 26, 1980, pertaining to the disposal of scrap Glastic® 1412AM under the provisions of the Resource Conservation and Recovery Act of 1976 (RCRA), it is the opinion of the Glastic® Company that the polymerized or cured Glastic® 1412AM can be sent directly to the sanitary landfill. The justification for this position may be found in Volume 45, Number 98, Subpart A, Paragraph 861.3(a)(ii) of RCRA. The key to our position is the fact that Glastic® 1412AM in its polymerized form is an insoluble, non-hazardous solid.

Glastic® 1412AM in its unpolymerized or uncured form is a mixture and falls into RCRA category 261.33. The mixture consists of a liquid unsaturated polyester resin which is made up of an unsaturated polyester polymer (a high viscosity liquid) and an unsaturated monomer like vinyl toluene (a low viscosity liquid), glass fiber reinforcement, inorganic mineral fillers, organic peroxide cure initiators, metallic soap release agents, and organic and inorganic pigments. The components of unpolymerized, uncured Glastic® 1412AM are listed under RCRA hazardous waste numbers U002, U080, U159, U162, U220, U226, and U22P. Glastic® either disposes of these materials by converting them to a solid through polymerization or through a State-authorized disposal agency.

Any attempt to polymerize or cure scrap Glastic® 1412AM outside of a closed mold must be carried out with care. Unpolymerized or uncured Glastic® 1412AM contains a small amount of volatile flammable unsaturated monomer. Any oven or other means used to polymerize scrap Glastic® 1412AM should be hazard protected and well ventilated. If Glastic® 1412AM is heated uniformly above 250°F for 30 minutes, it will be fully polymerized or cured.

I trust that the preceding will be of assistance in addressing this situation. If I can be of further assistance, please do not hesitate to call.

Very truly yours,

Brian L. Swanson

Brian L. Swanson
Vice President
Marketing
Research and Development

BLS:ecp

M E M O R A N D U M

TO: G. C. Shah
Division of Hazardous Material
& Waste Management
Frankfort Office

FROM: Jack Watkins
Division of Hazardous Material
& Waste Management
Bowling Green Office

SUBJECT: Cutler-Hammer, Warren County
Special Permission

DATE: December 15, 1980

Enclosed are the analyses for four types of waste. These wastes are solid and the gases will have dissipated before going to the landfill.

I see no problem with this material going to the landfill. (016.02)

Samples are being sent under separate cover.

WJ/dj

cc: Bowling Green File

M E M O R A N D U M

TO: Barry Burrus
Division of Hazardous Material
& Waste Management
Frankfort Office

FROM: Jack Watkins
Division of Hazardous Material
& Waste Management
Bowling Green Office

SUBJECT: Paint residue from Cutler Hammer
Bowling Green, Warren County

DATE: January 13, 1981

On the above date I talked to Mel Smith, Project engineer for the above company. Mr. Smith has submitted an application (12/9/80) to dispose of 250 gal/year of a paint residue identified as Enamel 70-8538 in the Bowling Green Sanitary Landfill (016.02).

According to Mr. Smith there are no metals in this waste.

JW/dj

MEMORANDUM

TO: Hannah Leonard
Division of Hazardous Material & Waste Management
Frankfort Office

FROM: Jack Watkins
Division of Hazardous Material & Waste Management

SUBJECT: Cutler Hammer
Bowling Green, Kentucky
Warren County

DATE: September 3, 1980

Enclosed is a special permission application for the above industry. There was a question concerning the flash point on one of the samples which was run on the liquid (40°F). The enamel was then reduced to a solid and the flash point was not applicable.

JW/dj

Jackie Swigart
Secretary

John Y. Brown, Jr.
Governor

COMMONWEALTH OF KENTUCKY
DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS MATERIAL AND WASTE MANAGEMENT
PINE HILL PLAZA
1121 LOUISVILLE ROAD
FRANKFORT, KENTUCKY 40601

March 11, 1980

Mr. James L. Chaffee, P.E.
Director of Public Works
City of Bowling Green
P.O. Box 130
Bowling Green, KY 42101

Dear Mr. Chaffee:

This letter is in response to a February 15, 1980, request from Cutler-Hammer to dispose of paint sludge at your landfill, #016.02, in Butler County. We have evaluated the results of the leach test submitted by Cutler-Hammer. Based on these test results, the materials would be classified as non-hazardous. Therefore, permission is hereby granted for the disposal of 495 gallons per year of this waste material.

You may consider this letter as permission to accept this waste until July 1, 1980, expiration of your current permit. Before the expiration date of your permit, we will again review the disposal request and make a decision as to further acceptance of the waste. However, this permission may be revoked by the Department before that date if it is determined that the disposal is not in accordance with these specifications and requirements.

If you have any questions, please feel free to contact me.

Sincerely,

Roger Blair, Director
Division of Hazardous Material
and Waste Management

RB:GP:akw

cc: Cutler-Hammer
Don Curry, Area Supervisor
George Parker, Environmental Engineer
Pat Haight, Manager
Enforcement Section
Monitoring Section

KENTUCKY DEPARTMENT FOR NATURAL RESOURCES
AND ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS MATERIAL AND WASTE MANAGEMENT

Application for Permission to Dispose
of Special and/or Hazardous Waste at
a Permitted Disposal Site

FOR AGENCY USE

Received _____
Issued _____
Expires _____
Site No. _____
Approved _____

I. GENERAL INFORMATION

A. Disposal Site: _____
(name) (site no.)

_____
(county) (location)

B. Waste Hauler | Waste Generator

Co. Name/Indiv. Name: _____
Street: _____
City, State: _____
Telephone: _____
Driver's Name: _____ Person in Charge: _____

II. WASTE CHARACTERISTICS

A. Source (Indicate S.I.C. Industry Classification 2851.)

B. Description (Descriptive or Common)

1. Indicate Waste Name: Enamel #70-8538
2. Waste is: Liquid X, Solid ___, Semi-Solid ___, Other ___ (check one)
3. Percent of Solids by Volume: 43.70 as supplied - sludge will be higher
4. Expected Volume is: 165 gallons ___ or Cubic Yards X per year.

C. Properties

1. Acidity-Alkalinity: High ___ Moderate ___ Low X None ___

   As: HCL ___ H_2SO_4 ___ HNO_3 ___ NaOH ___
   NH_4OH ___ Other (list) trace acidity from fatty acid polymer

2. Volatility: High X Moderate ___ Low ___ None ___
3. Toxicity (dermal): High ___ Moderate ___ Low X None ___
4. Toxicity (inhalation): High ___ Moderate X Low ___ None ___
5. Toxicity (ingestion): High X Moderate ___ Low ___ None ___
6. Other (describe): _____

D. Analyses

1. Waste is: Organic ___ Inorganic ___ Mixture X (check one)
2. List organic components (% by weight):

Alkyd Polymer	21.0%	Xylene	23.7%
Melamine/Formaldehyde	8.3%	Toluene	10.5%
Tri-Ethyl/Amine	0.25%	N-Butyl Alcohol	3.7%

PREMIX, INC.

P. O. BOX 281

NORTH KINGSVILLE, OHIO 44068

PHONE (216) 224-2181

December 1, 1980

Mr. Mel Smith
Eaton Corporation
Box 1158
Bowling Green, KY 42101

Dear Mr. Smith:

In reference to our telephone conversation of December 1, 1980, our Premi-Glas® 3100-18 does not contain any of the metals (including silver) listed in part 261.24, Table I of the RCRA Act. Our material does not meet any of the characteristics of E.P. Toxicity.

If you have any other questions, please do not hesitate to phone.

Sincerely,

PREMIX, INC.

Debbi Parshall

Debbi Parshall
Environmental Specialist

PREMIX, INC.

P. O. BOX 281

NORTH KINGSVILLE, OHIO

DEBBI PARSHALL

ENVIRONMENTAL SPECIALIST

PHONE 216 224-2181

I. Waste Characteristics of Premix Molding Compounds

A. Source (Sic. Industry Classification) 30-79

B. Description

1. Waste Name 3100-14

2. Waste is a solid.

C. Properties

1. Volatility None

2. Toxicity (Dermal, Inhalation, Ingestion) Low

D. Analysis

1. Waste is a mixture of organic and inorganic materials.

2. Organic Compounds (% by weight)

Polyester Resin	30-40%
Catalyst	0.5-1.0%
Stearate, pigment	5.3%

II. Methods of Disposal

A. Waste can be disposed of in natural form.

B. Waste may be disposed of in shipping containers.

C. Waste may be disposed of in a sanitary landfill.

Debbi Parshall
Environmental Specialist

M&T CHEMICALS INC.
FUNCTIONAL PLASTICS DIVISION
5321 SAN FERNANDO ROAD WEST
LOS ANGELES, CALIFORNIA 90039
(213) 247-6210
TWX (910) 497-2060

FURANE® PRODUCTS

INFORMATION SHEET

EPIBOND* 153-A/B

(Formerly EPIBOND* 153/9814)

Semi-Flexible Paste
Cream Colored

~~EP-56-34-E-8~~

DESCRIPTION: EPIBOND* 153-A/B is a cream colored paste formulated specifically for bonding dissimilar materials with different thermal expansion coefficients. This system exhibits some flexibility allowing movement to take place in an expansion joint or crack. It will withstand bending and stresses in tank seems when flexible formulations are utilized. EPIBOND* 153-A/B is a versatile material in that varying proportions of hardener can be mixed to give different degrees of flexibility. It is easily applied, has good work life or pot life, and cures at room temperature.

PREPARATORY MEASURES: Clean and dry surfaces are recommended. For further detailed instructions refer to Surface Preparation Bulletin EP-56-10.

MIX RATIO: Mix equal parts by weight or volume of EPIBOND* 153-A and -B.

MIX THOROUGHLY.

Mixing may be more readily accomplished by pre-warming (before combining) both resin and hardener to 120°F. (49°C.). To make more flexible, up to 150 parts by weight of EPIBOND* 153-B may be added to 100 parts by weight of EPIBOND* 153-A. Individual requirements usually determine the degree of flexibility required.

POT LIFE: One pound mix - approximately 1 hour at 77°F.(25°C.).

CURE:

Tack free at 77°F.(25°C.)	2-3 hours
Room Temp. cure at 77°F.(25°C.)	3-5 days for full cure
Heat cure	Optimum chemical resistance and physical properties are obtained when post-cured 3-5 hours at 150°F.(65°C.).

NOTE: The more rigid formulation is superior in chemical resistance to the flexible formulation.

*Registered U.S. Patent Office

MATERIAL SAFETY DATA SHEET

(Approved by U.S. Department of Labor Essentially Similar to Form LSB-00S-4)

M&T CHEMICALS INC.
GENERAL OFFICES
Rahway, New Jersey 07065
(201) 499-0200

EMERGENCY PHONE NUMBERS

During Office Hours, 8:30 A.M. - 4:30 P.M.
Call (201) 499-2401
After Hours
Call (201) 499-2445

CABLE ADDRESS
MANTCHEMS — RAHWAY N.J.
TWX 710-996-5841
710-996-5842

5/79

CHEMICAL NAME: N/A

SYNONYMS: X-87581 B

CHEMICAL FAMILY:

FORMULA: Proprietary

MOLECULAR WEIGHT: N/A

TRADE NAME AND SYNONYMS: Hn. 9814

I. INGREDIENTS

MATERIAL	%	TLV (Units)
Solvents	60-70	
fumed amorphous silica	15-20	
Alkyl , amide	less than 10	

II. PHYSICAL DATA

BOILING POINT, 760 mm. Hg		FREEZING POINT	
SPECIFIC GRAVITY (H_2O = 1)		VAPOR PRESSURE at 20°C.	
VAPOR DENSITY (air = 1)		SOLUBILITY IN WATER, % by wt. at 20°C.	
PER CENT VOLATILES BY VOLUME		EVAPORATION RATE (Butyl Acetate = 1)	
APPEARANCE AND ODOR	liquid		

III. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (test method)	N/A	AUTOIGNITION TEMPERATURE			
FLAMMABLE LIMITS IN AIR, % by volume		LOWER		UPPER	
EXTINGUISHING MEDIA	☒ Water Spray ☒ Carbon Dioxide ☐ Other ☒ Foam ☒ Dry Chemical				
SPECIAL FIRE FIGHTING PROCEDURES	☒ Avoid Eye and Skin Contact ☒ Do Not Breathe Fumes ☐ Other				
UNUSUAL FIRE AND EXPLOSION HAZARDS					

MATERIAL SAFETY DATA SHEET

(Approved by U.S. Department of Labor Essentially Similar to Form LSB-00S-4)

M&T CHEMICALS INC.
GENERAL OFFICES
Rahway, New Jersey 07065
(201) 499-0200

EMERGENCY PHONE NUMBERS

During Office Hours, 8:30 A.M. - 4:30 P.M.
Call (201) 499-2401
After Hours
Call (201) 499-2445

CABLE ADDRESS
MANTCHEMS — RAHWAY N J
TWX 710-996-5841
710-996-5842

4/79

CHEMICAL NAME: N/A

SYNONYMS: Epibond 104 CHEMICAL FAMILY: Epoxy

FORMULA: Organic filled epoxy resin MOLECULAR WEIGHT: N/A

TRADE NAME AND SYNONYMS: Epibond 153

I. INGREDIENTS

MATERIAL	%	TLV (Units)
Epoxy Resin	~ 70%	
Organic Compound	~ 20%	
Solvent	~ 10%	

II. PHYSICAL DATA

BOILING POINT, 760 mm. Hg		FREEZING POINT	
SPECIFIC GRAVITY (H_2O = 1)		VAPOR PRESSURE at 20°C.	
VAPOR DENSITY (air = 1)		SOLUBILITY IN WATER, % by wt. at 20°C.	insoluble
PER CENT VOLATILES BY VOLUME		EVAPORATION RATE (Butyl Acetate = 1)	
APPEARANCE AND ODOR	solid		

III. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (test method)	> 350°F	AUTOIGNITION TEMPERATURE			
FLAMMABLE LIMITS IN AIR, % by volume		LOWER		UPPER	
EXTINGUISHING MEDIA	☒ Water Spray ☒ Carbon Dioxide ☐ Other ☒ Foam ☒ Dry Chemical				
SPECIAL FIRE FIGHTING PROCEDURES	☐ Avoid Eye and Skin Contact ☐ Do Not Breathe Fumes ☐ Other				
UNUSUAL FIRE AND EXPLOSION HAZARDS					

C-586-9-8-29

September 2, 1988

Mr. Narindar Kumar
Site Investigation and Support Branch
Waste Management Division
Environmental Protection Agency
345 Courtland Street, N. E.
Atlanta, Georgia 30365

Date: 10/6/88
Site Disposition: L
EPA Project Manager: RM

Subject: Preliminary Reassessment
Eaton Corporation
Bowling Green, Warren County, Kentucky
TDD No.F4-8806-12

Dear Mr. Kumar:

FIT 4 conducted a preliminary reassessment of the Eaton Corporation in the city of Bowling Green, Warren County, Kentucky. The reassessment included a review of state and EPA file material, completion of a target survey, and a drive-by reconnaissance of the site and surrounding area.

The Bowling Green plant is under the Cutler-Hammer division of Eaton Corporation and is located in a commercial area. This plant produces electrical motor switchgear for industrial applications. Wastes generated at the plant include electroplating sludge, water-based and other types of paint wastes, used lubricating oil, and used chlorinated solvents (Ref. 5).

A disposal area was set up on the property to receive plant waste, and it operated from 1965 until it was deactivated in 1981 (Ref. 1). The disposal area, a series of open lagoons, was approximately 1 acre in size and had a capacity for more than 196,000 gallons (Ref. 17). Effluent from the electroplating operation was treated then directed to the clay-lined sludge beds which, in turn, overflowed to the clay-lined settling ponds. Under a permit from the state of Kentucky, discharges from the ponds were directed to a sinkhole lake on the property (Ref. 1).

A final closure plan for the disposal area was certified in October, 1984 by Dames & Moore. In order for the final closure plan for the disposal area to be approved, 3254 tons of sludge and 3910 tons of contaminated clay liner were removed. Sampling data collected after the removal of the sludge and clay liner indicated elevated levels of chromium, cadmium, free cyanide, and nickel in the soil around the lagoon. The contaminated soil was also removed prior to closure (Ref. 8).

There are two water-distribution systems serving the Bowling Green area. The Bowling Green Water Company serves 12,512 residential hook-ups, some in the city of Bowling Green and some in rural areas. The Warren County Water District system serves 11,316 residential and 486 commercial hook-ups in rural areas. Both water-distribution systems receive water from the same point on the Barren River. There are four known homes within a 3-mile radius that have private wells, and several more probably exist. The closest private well is 10,000 feet away from the reclaimed lagoons (Ref. 4).

CUTLER • HAMMER

POWER DISTRIBUTION AND CONTROL DIVISION

P. O. BOX 1158
2901 FITZGERALD INDUSTRIAL DRIVE
BOWLING GREEN, KY. 42101
PHONE: 502-782-1555

March 20, 1980

Division of Hazardous Material
& Waste Material
Pine Hill Plaza
1121 Louisville Road
Frankfort, Kentucky 40601

Attn: Mrs. Pat Haight
Environmental Engineer

Dear Mrs. Haight:

This is to request permission to dispose of 30 gallons of polymerized Hysol epoxy resin identified as C9-4215/HD3563 in a sanitary landfill site. An application form issued by your office with all pertinent data included is attached, and I am enclosing a sample of the polymerized material as we proposed to dispose of it.

Sincerely,

M. H. Smith
Project Engineer

wg

cc: EPA File

attachments

CUTLER • HAMMER

POWER DISTRIBUTION AND CONTROL DIVISION

P. O. BOX 1158
2901 FITZGERALD INDUSTRIAL DRIVE
BOWLING GREEN, KY. 42101
PHONE: 502-782-1555

January 31, 1980

Division of Hazardous Material &
Waste Management
1121 Louisville Road
Pine Hill Plaza
Frankfort, Kentucky 40601

Attn: Mr. George Parker
Environmental Engineer

Dear Mr. Parker:

This is to inform you of our activities involved with the generation, treatment, storage and disposal of hazardous wastes (as defined in 401 KAR 2:100) for the purpose of obtaining registration and a storage permit as required by state law. A registration form is attached.

Since most of our hazardous waste originates in electroplating, this operation will be given first consideration. Briefly, it can be broken down into the various elements as follows:

I. ELECTROPLATING, PICKLING, AND BRIGHT DIPPING
II. TREATMENT
III. STORAGE
IV. DISPOSAL

Each of these elements is treated in more detail as follows:

I. ELECTROPLATING - This consists of Copper, Nickel, Chromium, Zinc, Silver, and Tin Plating.

II. TREATMENT - There are four, closed loop in-plant systems which treat rinse waters (directly following plating tanks) as follows:

1. Integrated Chromium Treatment - Hexavalent chromium is reduced to the trivalent state. The solution is made alkaline, and [redacted] ed.

2. Integrated Cyanide Treatment (zinc plating) This is a two stage, alkaline chlorination system in which the cyanide is rapidly oxidized to cyanate, which in turn is oxidized at a slower rate to yield carbon dioxide and nitrogen.

3. Integrated Cyanide Treatment (copper and silver plating) - This is a two stage, alkaline chlorination system in which the cyanide is rapidly oxidized to cyanate, which in turn is oxidized at a slower rate to yield carbon dioxide and nitrogen.

4. Integrated Copper Treatment - This system is designed to neutralize acid drag-out from acidic copper plating and bright dipping operations, with cuprous hydroxide being precipitated.

In addition to the integrated treatment systems just noted, there are also three in-plant "batch" treatment systems as follows:

1. Batch Acid Treatment - All remaining acidic materials are collected and "batch" treated with heavy metals being precipitated.

2. Batch Alakli Treatment - All spent alkaline solutions are collected and "batch" treated. Any cyanide present is destroyed by chlorination and the pH is then adjusted to precipitate heavy metals.

3. Floor Spills - Floor spills are collected and then diverted to the proper batch treatment tanks for appropriate treatment.

After treatment, the precipitated metal hydroxides and the slightly alkaline salt solution in which they are suspended are pumped to sludge beds located within the fenced confines of our property. This material, a mixture of discharges from all seven tanks, is denoted as Waste #1 on the Hazardous Waste Information Summary sheet attached.

III. STORAGE - The waste stream just discussed now enters a distribution box from which it is diverted to either of two sludge beds, each of which has a capacity of 98,000 gallons. (Construction details and physical location of these beds, as well as details of remaining portions of the treatment system, are shown on the attached drawing CE-4). Skimmers are used to collect the overflow from these beds and direct it to the west Holding Pond, while fresh water

rinses flow into both the east and west Holding Ponds. The combined output from these two ponds is monitored and then discharged under Kentucky Operational Permit No. 03017016 to a lake (having no surface outlets) on our property. This output is analyzed for one week during each month and the results of this analysis are then submitted to your department. It is our intent to discharge this output to the Bowling Green Municipal Utility sometime later this year through an agreement which has already been reached with local authorities.

IV. DISPOSAL - In 1979, disposal was made of the metal hydroxide sludge which had accumulated up to that time. This was accomplished by first treating the sludge with lime, acid and a polyelectrolyte, after which it was filter pressed to produce a crumbly "cake" which was subsequently disposed of in a Hazardous Waste Disposal Site, operated by NEWCO Chemical Waste Systems of Ohio, Inc. and licensed by the state of Ohio.

According to NEWCO officials, the Waste Product Record, and Waste Shipment Manifest forms utilized are in compliance with RCRA requirements.

As noted previously, we currently operate under a Kentucky permit. In addition, we are in the process of up-grading our Lancy Waste Treatment System to ensure even greater operational control. Beyond this, future plans call for equipment modifications and additions which will enable us to develop "cake" in-house, thru an in-line technique. This accomplishment will then eliminate the need for the present sludge beds.

Other hazardous materials will now be considered.

WATER-BASED PAINT WASTE - This is identified as Waste #2 on the Hazardous Waste Information Summary sheet. Since disposal will be made on a quarterly basis, it is assumed that no storage permit will be required. According to the manufacturer of this product, the sludge contains less than 0.0025 mg/l each of copper and lead. Kentucky waste disposal forms, including pertinent data, have been submitted to Mr. Jack Watkins, your local representative, for a recommendation as to acceptable means of disposal.

PAINT WASTE - This is identified as Waste #3 on the Hazardous Waste Information Summary sheet. Again, disposal will be made on a quarterly basis, thus eliminating the need for a storage permit. According to the manufacturer of

the paint, it includes none of the metals shown on Kentucky waste disposal forms. These forms have also been submitted to Mr. Watkins for recommentation on an acceptable method of disposal for this material.

USED LUBRICATING OIL - This is identified as Waste #4, but is reclaimed (rather than being disposed of as a waste product) on a quarterly basis.

USED CHLORINATED SOLVENTS - These are identified as Waste #5 but will be reclaimed (rather than being disposed of as a waste product) on a quarterly basis.

Fifteen copies each of the Kentucky WASTE PRODUCT RECORD and WASTE SHIPMENT MANIFEST forms are requested in order that we may comply with the new regulations dealing with recrods and manifests.

I want to thank you for your cooperation in discussing these new regulations and the manner in which the new permits will relate to them. As a result of these discussions, I feel that the information being provided now is that which is required to enable the issuance of a new permit. However, if there is any question, please do not hesitate to call me.

Sincerely,

CUTLER-HAMMER

M. H. Smith
Project Engineer

cc: EPA File

attachments: Registration Form - "Registration as a Hazardous Waste Generator"
Hazardous Waste Information Summary
Drawing CE-4

CUTLER • HAMMER

POWER DISTRIBUTION AND CONTROL DIVISION

P. O. BOX 1158
2901 FITZGERALD INDUSTRIAL DRIVE
BOWLING GREEN, KY. 42101
PHONE: 502-782-1555

August 5, 1980

Mr. Jack Watkins
Dept. for Natural Resources &
Environmental Protection
615 Chestnut Street
Bowling Green, Kentucky 42101

Dear Mr. Watkins:

Attached is a hazardous waste disposal application form for a small amount of polymerized polyester resin which we would like to dispose of, with your approval, in a sanitary landfill site. A sample of the subject material is provided with this letter.

Sincerely,

M. H. Smith
Project Engineer

wg

cc: EPA File

[redacted]
POWER DISTRIBUTION AND CONTROL DIVISION

P. O. BOX 1158
2901 FITZGERALD INDUSTRIAL DRIVE
BOWLING GREEN, KY. 42101
PHONE: 502-782-1555

May 2, 1980

Division of Hazardous Material &
Waste Material
Pine Hill Plaza
1121 Louisville Road
Frankfort, Kentucky 40601

Attn: Mrs. Pat Haight
Environmental Engineer

Dear Mrs. Haight:

This is in regards to our discussion on May 1 concerning the disposal of four gallons of epoxy material. To provide the information you requested, I am attaching a copy of the manufacturer's statement regarding materials, a product data sheet, and a material safety data sheet. It is our proposal to dispose of this material in the polymerized state - a sample chip is enclosed.

Unless I hear differently from you, we will proceed to dispose of this material as discussed.

Sincerely,

M. H. Smith
Project Engineer

wg

cc: EPA File

Jackie Swigart

Brown Jr

DEPARTMENT FOR NATURAL RESOURCES

January 28, 1981

Carol Warren

Mr. James L. Chaffee, P.E.
Director of Public Works
City of Bowling Green
P.O. Box 130
Bowling Green, KY 42101

Dear Mr. Chaffee:

This letter is in response to a December 9, 1980, request from Eaton Corporation, Cutler-Hammer Division, to dispose of the following four waste materials and amounts at your landfill, #016.02, in Butler County:

1. Waste paint sludge of Lilly 70-8538 (Eaton 637-251) — 250 gallons per year
2. Waste epoxy resin of Sterline Y297-M-46 (Eaton 637-1410) — 25 gallons per year
3. Waste polyester molding of pre-mix 3100-18 (Eaton 690-401) — 7,000 pounds one time only
4. Waste polymerized glastic 1423AD (Eaton 690-397) — 7,000 pounds one time only

We have evaluated the results of the laboratory analyses and technical literature submitted by Cutler-Hammer. Based on this information, the materials would be classified as non-hazardous. Therefore, permission is hereby granted for the disposal of the above listed waste materials. All of these wastes must be in their solid, hardened or polymerized form.

You may consider this letter as permission to accept these wastes until July 1, 1981, expiration of your current permit. Before the expiration date of your permit, we will again review the disposal request and make a decision as to further acceptance of the waste. However, this permission may be revoked by the Department before that date if it is determined that the disposal is not in accordance with these specifications and requirements.

If you have any questions, please feel free to contact me.

Sincerely,

Roger Blair, Director
Division of Waste Management

RB:BB:akw

cc: Pat Haight
Jack Watkins
Jimmie D. Hankins
Barry Burrus
M. H. Smith

KENTUCKY DEPAR ENT FOR NATURAL RESOURCES
AND ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS MATERIAL AND WASTE MANAGEMENT

Application for Permission to Dispose
of Special and/or Hazardous Waste at
a Permitted Disposal Site

FOR AGENCY USE

Received _____
Issued _____
Expires _____
Site No. _____
Approved _____

RECEIVED
OCT 1 1980
DIV. OF HAZARDOUS MATERIAL AND WASTE MANAGEMENT

I. GENERAL INFORMATION

A. Disposal Site: Butler County (name) 016.02 (site no.)

Butler (county) (location)

B.

	Waste Hauler	Waste Generator
Co. Name/Indiv. Name:	Monarch Environmental	EATON Corp. - Bowling Green Plant
Street:	2560 Scottsville Road	2901 Industrial Drive
City, State:	Bowling Green, Ky 42101	Bowling Green, Ky 42101
Telephone:	(502) 781-0781	(502) 782-1555
Driver's Name:		Person in Charge: M. H. Smith

II. WASTE CHARACTERISTICS

A. Source (Indicate S.I.C. Industry Classification 3622 .)

B. Description (Descriptive or Common)

1. Indicate Waste Name: Cured Resin - Solid (EATON pt. #637-1410)
2. Waste is: Liquid ___, Solid X, Semi-Solid ___, Other ___ (check one)
3. Percent of Solids by Volume: 100
4. Expected Volume is: 25 gallons ___ or Cubic Yards X per year.

*C. Properties [illegible] ATTACHED

1. Acidity-Alkalinity: High ___ Moderate ___ Low ___ None X

As: HCL ___ H_2SO_4 ___ HNO_3 ___ NaOH ___

NH_4OH ___ Other (list) _____

2. Volatility: High ___ Moderate ___ Low ___ None X
3. Toxicity (dermal): High ___ Moderate ___ Low X None ___
4. Toxicity (inhalation): High ___ Moderate ___ Low ___ None X
5. Toxicity (ingestion): High ___ Moderate ___ Low ___ None X
6. Other (describe): _____

*D. Analyses

1. Waste is: Organic X Inorganic ___ Mixture ___ (check one)
2. List organic components (% by weight):

Epoxy-amide Polymer	50 %	_____	___ %
_____	___ %	_____	___ %

* 3. *CONCENTRATIONS (mg/L UNLESS INDICATED) (attached original analysis report).*

	DISSOLVED	SUSPENDED
As	None	None
Cd	"	"
Cr	"	"
CN	"	"
Cu	"	"
Hg	"	"
Ni	"	"
Pb	"	"
Zn	"	"

Total Solids (% by Weight)	100%
Total Dissolved Solids	NA
Acidity (%)	NA
Alkalinity (%)	NA
Flash Point (°F)	NA
pH	NA
Alpha Radiation (pCi/l)	None
Phenols	None
PCBs	None
Asbestos	None

Other: _____

II. METHOD OF DISPOSAL

A. *Waste will be pre-treated/neutralized prior to disposal. Yes ___ No X (If yes, describe):* _____

B. *Is waste to be disposed of in containers? (If so, explain method):*
Drum ___ Bag ___ Box ___ Cylinder ___ Loose ___ (check which)
1 - gallon cans

C. *Waste disposal will be accomplished by: (check one or more)*

1. Direct sanitary landfill (co-mixed in place)	___
2. Injection into a completed landfill cell	___
3. Surface absorption into a completed cell	___
4. Segregation to an isolated cell	___
5. Land spreading/discing	___
6. Buried in original container	X
7. Other (describe)	___

IV. SIGNATURE OF APPLICANT (or Authorized Agent)

M. H. Smith, Sr. Project Engineer

DATE: 9/23/80

SIGNATURE OF ANALYZING CHEMIST OR PROFESSIONAL ENGINEER

ADDRESS: _____

TELEPHONE: _____

DATE: _____

*** Data supplied by manufacturer**

O.K.

CUTLER • HAMMER

POWER DISTRIBUTION AND CONTROL DIVISION

P. O. BOX 1158
2901 FITZGERALD INDUSTRIAL DRIVE
BOWLING GREEN, KY. 42101
PHONE: 502-782-1555

December 9, 1980

Mr. Roger Blair, Director
Division of Hazardous Material & Waste Management
Pine Hill Plaza
1121 Louisville Road
Frankfort, Kentucky 40601

Dear Mr. Blair:

This in reference to your letter of October 27, 1980, in which our request to dispose of Lilly Pt. No. 70-8538 paint sludge in the Butler County landfill site was denied.

Thru an oversight by myself and our vendor, the total solids (62.1%) and Flash Point (40F) data submitted on the disposal application form, were values valid for the paint as a usable product, not as a waste material.

On tests just completed by Western Kentucky University on an actual sample for disposal, the solids content and Flash Point were determined to be 78.6% and 340F respectively.

Therefore, an application form, revised accordingly, is attached for your reconsideration.

A sample of the subject material has been sent to Mr. Jack Watkins, local inspector.

Sincerely,

EATON CORPORATION

M. H. Smith
Sr. Project Engineer

wg

cc: Messrs: Jimmie D. Hankins
Jack Watkins
HWM Program file (Lilly)

attachments: Ky Hazardous Waste Disposal form (2 pages)

KENTUCKY DEPARTMENT FOR NATURAL RESOURCES
AND ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS MATERIAL AND WASTE MANAGEMENT

Application for Permission to Dispose
of Special and/or Hazardous Waste at
a Permitted Disposal Site

FOR AGENCY USE

Received _____
Issued _____
Expires _____
Site No. _____
Approved _____

I. GENERAL INFORMATION

A. Disposal Site: Butler County (name) 016.02 (site no.)

Butler (county) (location)

B.

	Waste Hauler	Waste Generator
Co. Name/Indiv. Name:	Monarch Environmental	Eaton Corp. - Bowling Green Plant
Street:	2560 Scottsville Road	2901 Industrial Drive
City, State:	Bowling Green, Ky 42101	Bowling Green, Ky 42101
Telephone:	(502) 781-0781	(502) 782-1555
Driver's Name:		Person in Charge: M. H. Smith

II. WASTE CHARACTERISTICS

A. Source (Indicate S.I.C. Industry Classification 3622 .)

B. Description (Descriptive or Common)

1. Indicate Waste Name: Enamel 70-8538
2. Waste is: Liquid ___, Solid X, Semi-Solid ___, Other ___ (check one)
3. Percent of Solids by Volume: 43.70 as supplied-sludge will be higher
4. Expected Volume is: _____ gallons ___ or Cubic Yards ___ per year.

C. Properties

1. Acidity-Alkalinity: High ___ Moderate ___ Low X None ___

   As: HCL ___ H_2SO_4 ___ HNO_3 ___ NaOH ___
   NH_4OH ___ Other (list) trace acidity from fatty acid polymer

2. Volatility: High ___ Moderate ___ Low X None ___
3. Toxicity (dermal): High ___ Moderate ___ Low X None ___
4. Toxicity (inhalation): High ___ Moderate X Low ___ None ___
5. Toxicity (ingestion): High X Moderate ___ Low ___ None ___
6. Other (describe): _____

D. Analyses

1. Waste is: Organic ___ Inorganic ___ Mixture X (check one)
2. List organic components (% by weight):

Alkyd polymer	21.0 %	Xylene	Approx 10 %
Melamine/formaldehyde	8.3 %	Toluene	Approx 4 %
Tri-ethyl amine	0.25%	n-Butyl Alcohol	Approx 1%

3. CONCENTRATIONS (mg/L UNLESS INDICATED) (attached original analysis report).

	DISSOLVED	SUSPENDED		
As	NONE		Total Solids (% by Weight)	~~62.10~~ *78.6
Cd	"		Total Dissolved Solids	
Cr	"		Acidity (%)	
CN	"		Alkalinity (%)	
Cu	"		Flash Point (°F)	~~40 F - G.G~~ *340F
Hg	"		pH	
Ni	"		Alpha Radiation (pCi/l)	NONE
Pb	"		Phenols	"
Zn	"		PCBs	"
			Asbestos	"

Other: *Revised total solids and Flash Point data from analysis by Dr. John Riley and RMI lab of Western Kentucky University during ~~week of 12/3/80~~

III. METHOD OF DISPOSAL

A. Waste will be pre-treated/neutralized prior to disposal. Yes ___ No X (If yes, describe): _____

B. Is waste to be disposed of in containers? (If so, explain method):
Drum X Bag ___ Box ___ Cylinder ___ Loose ___ (check which)

C. Waste disposal will be accomplished by: (check one or more)

1.	Direct sanitary landfill (co-mixed in place)	___
2.	Injection into a completed landfill cell	___
3.	Surface absorption into a completed cell	___
4.	Segregation to an isolated cell	___
5.	Land spreading/discing	___
6.	Buried in original container	X
7.	Other (describe)	___

IV. SIGNATURE OF APPLICANT (or Authorized Agent)

M. H. Smith

M. H. Smith, Sr. Project Engineer
DATE: September 24, 1980

SIGNATURE OF ANALYZING CHEMIST OR PROFESSIONAL ENGINEER

Paul C. Foster

LILLY INDUSTRIAL COATINGS
ADDRESS: 546 ABBOTT ST
INDIANAPOLIS, IN 46117
TELEPHONE: 1-317-633-5512
DATE: 2/12/80

O.K.

Eaton Corporation
Standard Power Control Division
2901 Fitzgerald Industrial Drive
P.O. Box 1158
Bowling Green, Kentucky 42101
Telephone (502) 782-1555

December 9, 1980

Mr. Jack Watkins
Kentucky Bureau of Environmental Protection
Division of Hazardous Material & Waste Management
P.O. Box 2150
Bowling Green, Kentucky 42101

Dear Mr. Watkins:

EATON

This is to request your approval for the disposal of 25 gallons of Sterling Epoxy Resin Y297-M-46 (Eaton 637-1410) in the Butler County sanitary landfill site. The material is in the polymerized or solid state.

A copy of the Kentucky Hazardous Waste Disposal form is attached; and the information contained therein came from Sterling personnel, but their company policy prohibits the signing of such documents.

A sample of the subject material is also attached.

Your early consideration of this request will be greatly appreciated.

Sincerely,

EATON CORPORATION

M. H. Smith
Sr. Project Engineer

cc: Jim Hankins
HWM Program file (Sterling)

attachment: HMWM Disposal Application Form
Sterling Resin Sample

CUTLER-HAMMER

POWER DISTRIBUTION AND CONTROL DIVISION

101 FITZGERALD INDUSTRIAL DRIVE
BOWLING GREEN, KY 42101
PHONE 502-7[illegible]555

OK

February 15, 1980

Mr. George Parker
Environmental Engineer
Division of Hazardous Material and
Waste Management
Pine Hill Plaza
1121 Louisville Road
Frankfort, Ky 40601

Dear Mr. Parker:

Mr. Scott Morgan (your local inspector) and I recently discussed the proper method for disposal of the two specific paint sludges which we generate. He requested that I provide you with pertinent information on each of them. The first is a PPG product identified as JF2AP381/JF2AZ429. Technical data is presented on the attached application for disposal. You will note that the only metals present are copper and lead, each in total concentrations of less than 0.0025 mg/l. The estimated annual volume of thissludge is 330 gallons. The sample provided is the solid gray, cinder-like material.

The second sludge is a Lilly product identified as enamel No. 70-8538. Technical data is presented on the attached application form, and you will note that no metals are present. The first information supplied was of the material as a paint--information on the sludge state was then requested, and it is shown on the second form. The estimated annual volume of this material is 165 gallons. This sample is the mottle gray-white, plastic-like material.

Both of the above samples are being sent under separate cover to your attention.

I would appreciate it if you would consider the issuance of a permit for disposal for both of these materials by Monarch Environmental in the Butler sanitary fill site.

Please do not hesitate to contact me if further information is required.

M. H. Smith
Project Engineer

wg

cc/ Scott Morgan
EPA File

FILE

EUGENE F. MOONEY
SECRETARY

JULIAN M. CARROLL
GOVERNOR

COMMONWEALTH OF KENTUCKY
DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS MATERIAL
AND WASTE MANAGEMENT
FRANKFORT, KENTUCKY 40601

March 20, 1979

Mr. Mell Smith
[redacted]
P.O. Box 1158
Bowling Green, Kentucky 42101

Dear Mr. Smith:

I appreciate the time you made available for our discussion of the waste disposal operations at Cutler-Hammer.

Through the course of our discussion, it was determined that Cutler-Hamer landfills approximately 1,000 lbs. of resin per year. In reference to the landfill disposal of these resins, please find the enclosed Application to Dispose of Special and/or Hazardous Waste at a Permitted Disposal Site.

Since resin disposal is arranged on a quarterly basis, please complete the enclosed form prior to the disposal of this material. If I may be of any assistance please call.

Sincerely,

D. Scott Morgan
Environmental Specialist
Div. of Hazardous Material &
Waste Management

DSM:nlg

Enclosures

Eaton Corporation
Manufacturing Services Center
32500 Chardon Road
Willoughby Hills, Ohio 44094
Telephone (216) 523-5000

000174

CERTIFIED MAIL P31 9519523

August 7, 1981

U. S. EPA
Region IV
Sites Notification
Atlanta, GA. 30308

RE: Superfund Sites Notification

Gentlemen:

EATON

Eaton Corporation notified the EPA of reportable hazardous waste sites on June 9 and 29. A continuing survey has since uncovered a reportable site at the Eaton Corporation plant in Bowling Green, Kentucky. An appropriate notification form is attached.

Sincerely,

Kenneth Manchen

Kenneth Manchen
Staff Environmental Engineer

KM:ph

Attachment

P.S. A notification report was mailed to you on June 9, 1981 for the Eaton Corporation plant in Athens, Alabama. The type of hazardous waste facility located there is a landfill and not a land treatment site as was indicated. Please revise your records.

File

M E M O R A N D U M

TO: Carl Schroeder, Manager
Field Operations Branch
Division of Waste Management

FROM: Donald R. Curry
Division of Waste Management
Columbia Field Office

DATE: December 1, 1982

RE: Eaton Corporation/Cutler Hammer
Warren County

As you know on November 23, 1982, Jack Watkins and I visited the above company. This company is registered as a hazardous waste facility and has four storage and/or treatment surface impoundments at the plant site which contain hazardous wastes. A recent investigation was made by the Division of Water as a result of a complaint from two Western Kentucky University students. The students apparently are doing research on the underground Lost River System in Bowling Green and found some chemical seepage from the roof of the cave very near the location of the Cutler Hammer surface impoundments.

As you know samples were taken in various locations by the Division of Water which have shown contamination of this Lost River System. The contamination resembles the contents of the Cutler Hammer surface impoundments. Also, during our visit to the surface impoundments we observed that the level of the contents in one was somewhat lower than the level of an adjacent surface impoundment although both appeared to be at the same ground level.

As you know according to the hazardous waste regulations this level is to be monitored daily and the information maintained in a log. Mr. Mel Smith of Cutler Hammer indicated that no such monitoring has been done. I made Mr. Smith aware of the requirements verbally and by letter (see attached letter).

In view of our preliminary investigation and the test results from the Division of Water investigation, I feel that a dye test is necessary to determine if the surface impoundment is leaking. Therefore, I request assistance from the Compliance Branch in implementing the dye test.

DRC/jgh
cc: Jack Watkins
Curt Curtis
Pat Haight

File

Eaton Corporation
Standard Power Control Division
Bowling Green Plant
2901 Fitzgerald Industrial Dr.
Bowling Green, KY 42101
Telephone (502) 782-1555

October 20, 1982

Mr. Art Curtis, Chief of Plans Review Section
Department for Natural Resources
Division of Waste Management
18 Reilly Road
Frankfort, KY 40601

Dear Mr. Curtis

EATON

This is to confirm our telephone conversation yesterday concerned with closure of surface impoundments at this location. Closure was also discussed with Mrs. Pat Haight last Friday since I was unable to contact you at that time, and we were in urgent need of DNR reaction to our revised plans.

As you know, we are proceeding on the basis of chemical fixation/solidification with the delisted material to remain on-site. A contract has been signed with the Chemfix Corporation. They have sampled the impoundments and are now determining the most appropriate process to employ. It is our intent to follow through with the delisting petition, and as soon as it is approved, to develop a formal Closure Program for your approval.

However, whereas our intent was to actually close the impoundments in July, 1983, (they were deactivated on July 15, 1981), we would now like, for severe economic reasons, to close them in July, 1984.

Our Groundwater Monitoring Program has been approved by your department, and the first three quarterly reports have been filed. Details of our Financial Assurance Program were sent to Mr. J. Alex Barber last week.

Again, we need to delay closure until 1984 and hope that this proposal meets with your approval. Please give me a call if additional information is required.

Sincerely

Mel Smith

Mel Smith
Sr. Project Engineer

vsv

pc Mrs. Pat Haight, Manager
Compliance Branch

MEMORANDUM

TO: Jack E. McClure, Jr., Acting Chief
Hazardous Material Management Section

FROM: Jack Watkins, Environmental Specialist
Hazardous Material Management Section

DATE: August 9, 1978

SUBJECT: Cutler-Hammer, Bowling Green, Kentucky

On July 24, 1978, I visited the above industry and talked to Ken Keith, Safety Director, Mel Smith, Engineer, and Thomas Starr, Foreman.

This company has a metal plating operation, which has two (2) - 98,000 gallon treatment lagoons. One of these is emptied every other year. If the liquid is reduced to sludge, they should have about 200 drums per year. No NPDES permit is required because the effluent goes to a sinkhole.

It is my opinion that this waste should not be landfilled because of its volume, concentrations and can be incinerated.

JW:cjg

cc: Robert Adams IV, P.E.
City Hall, P.O. Box 130
Bowling Green, Kentucky 42101

Jack - Status? cg 9-7-78

FILE

MEMORANDUM

TO: Caroline P. Haight, Manager
Permit Review Branch

FROM: Barry Burrus, Chief
Uncontrolled Sites Section

DATE: March 21, 1984

SUBJECT: Uncontrolled Site Close-out for the Eaton Corporation,
Bowling Green Plant - Warren County

This facility produces relay-type electrical motor switchgear for industrial applications. Wastes generated at this facility include: electroplating sludge, water-based paint wastes, paint wastes used lubricating oil, and used chlorinated solvents.

The electroplating sludge is first treated with lime, acid, and a polyelectrolyte. It is then filter pressed to produce a "cake" which is disposed in a hazardous waste disposal site, operated by NEWCO Chemical Waste Systems of Ohio, Inc.

Water-based paint wastes, and paint wastes (containing no metals) are disposed on a quarterly basis.

Used lubricating oil and used chlorinated solvents are reclaimed on a quarterly basis.

The electroplating sludges are contained in lagoons prior to treatment. This practice is planned to be eliminated by an in-line filter cake process. Closure of the lagoons will begin in July, 1984.

After research of the KYNREPC files and the completion of a preliminary assessment by Robert Burns, I have concluded that this site requires no further action and should be removed from the uncontrolled sites list.

BB:RB:da

cc: Don Curry
Jack Watkins
Bob Prewitt
Robert Burns
File

EPA Notification (R) Hazardous Waste Sit

United States Environmental Protection Agency
Washington DC 20460

This initial notification information is required by Section 103(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 and must be mailed by June 9, 1981.

Please type or print in ink. If you need additional space, use separate sheets of paper. Indicate the letter of the item which applies.

810814 000173
KY SD000001120
RECEIVED
EPA/REGION IV
AUG 14

A Person Required to Notify:

Enter the name and address of the person or organization required to notify.

Name: Eaton Corporation; Standard Power Control Division
Street: 2901 Industrial Drive
City: Bowling Green State: KY Zip Code: 42101

B Site Location:

Enter the common name (if known) and actual location of the site.

KYD C98 950 306

Name of Site: (Same as Above)
Street:
City: County: State: Zip Code:

C Person to Contact:

Enter the name, title (if applicable), and business telephone number of the person to contact regarding information submitted on this form.

Name (Last, First and Title): Smith, Mel; Sr. Project Engineer
Phone: 502/782-1555

D Dates of Waste Handling:

Enter the years that you estimate waste treatment, storage, or disposal began and ended at the site.

From (Year): 1965 To (Year): 1981

E Waste Type: Choose the option you prefer to complete

Option 1: Select general waste types and source categories. If you do not know the general waste types or sources, you are encouraged to describe the site in Item I—Description of Site.

General Type of Waste:
Place an X in the appropriate boxes. The categories listed overlap. Check each applicable category.

1. ☐ Organics
2. ☐ Inorganics
3. ☐ Solvents
4. ☐ Pesticides
5. ☐ Heavy metals
6. ☐ Acids
7. ☐ Bases
8. ☐ PCBs
9. ☐ Mixed Municipal Waste
10. ☐ Unknown
11. ☐ Other (Specify)

_____
_____
_____

Source of Waste:
Place an X in the appropriate boxes.

1. ☐ Mining
2. ☐ Construction
3. ☐ Textiles
4. ☐ Fertilizer
5. ☐ Paper/Printing
6. ☐ Leather Tanning
7. ☐ Iron/Steel Foundry
8. ☐ Chemical, General
9. ☐ Plating/Polishing
10. ☐ Military/Ammunition
11. ☐ Electrical Conductors
12. ☐ Transformers
13. ☐ Utility Companies
14. ☐ Sanitary/Refuse
15. ☐ Photofinish
16. ☐ Lab/Hospital
17. ☐ Unknown
18. ☐ Other (Specify)

_____
_____
_____

Option 2: This option is available to persons familiar with the Resource Conservation and Recovery Act (RCRA) Section 3001 regulations (40 CFR Part 261).

Specific Type of Waste:
EPA has assigned a four-digit number to each hazardous waste listed in the regulations under Section 3001 of RCRA. Enter the appropriate four-digit number in the boxes provided. A copy of the list of hazardous wastes and codes can be obtained by contacting the EPA Region serving the State in which the site is located.

F006		

Form Approved
OMB No. 2000-0138

EPA Form 8900-1

Notification of Hazardous Waste — **Side Two**

F Waste Quantity:

Place an X in the appropriate boxes to indicate the facility types found at the site.

In the "total facility waste amount" space give the estimated combined quantity (volume) of hazardous wastes at the site using cubic feet or gallons.

In the "total facility area" space, give the estimated area size which the facilities occupy using square feet or acres.

Facility Type

1. ☐ Piles
2. ☐ Land Treatment
3. ☐ Landfill
4. ☐ Tanks
5. ☒ Impoundment
6. ☐ Underground Injection
7. ☐ Drums, Above Ground
8. ☐ Drums, Below Ground
9. ☐ Other (Specify) _____

Total Facility Waste Amount

cubic feet 57,286-(est.)

gallons

Total Facility Area

square feet

acres One (approx.)

G Known, Suspected or Likely Releases to the Environment:

Place an X in the appropriate boxes to indicate any known, suspected, or likely releases of wastes to the environment.

☐ Known ☐ Suspected ☐ Likely ☐ None

UNKNOWN

Note: Items H and I are optional. Completing these items will assist EPA and State and local governments in locating and assessing hazardous waste sites. Although completing the items is not required, you are encouraged to do so.

H Sketch Map of Site Location: (Optional)

Sketch a map showing streets, highways, routes or other prominent landmarks near the site. Place an X on the map to indicate the site location. Draw an arrow showing the direction north. You may substitute a publishing map showing the site location.

I Description of Site: (Optional)

Describe the history and present conditions of the site. Give directions to the site and describe any nearby wells, springs, lakes, or housing. Include such information as how waste was disposed and where the waste came from. Provide any other information or comments which may help describe the site conditions.

Our original electroplating waste water system provided for integrated closed-loop treatment of chromium and copper (acid) plating solutions: Zinc and copper (cyanide) plating solutions; and floor spill batch treatment. A closed loop Nickel treatment system was later added. Treated effluent was then discharged to lined sludge beds which in turn overflowed to lined settling ponds. Under a permit from the state of Kentucky, discharge from these ponds was then directed to a lake on our property. With the installation of new, and additional treatment equipment, our surface impoundments were deactivated on 6/15/81. Negotiations are now underway for the removal of these impoundments in accord with a closure plan approved by the Division of Hazardous Material and Waste Management, State of Kentucky. Our treatment system now provides for in-line development of filter cake with discharge of the resulting effluent to the local POTW.

J Signature and Title:

The person or authorized representative (such as plant managers, superintendents, trustees or attorneys) of persons required to notify must sign the form and provide a mailing address (if different than address in item A). For other persons providing notification, the signature is optional. Check the boxes which best describe the relationship to the site of the person required to notify. If you are not required to notify check "Other".

Name D. Adams, Plant Manager

Street (Same as item A)

City State Zip Code

Signature D. M. Adams Date 7-30-81

- ☐ Owner, Present
- ☐ Owner, Past
- ☐ Transporter
- ☒ Operator, Present
- ☐ Operator, Past
- ☐ Other

POTENTIAL HAZARDOUS WASTE SITE
IDENTIFICATION AND PRELIMINARY ASSESSMENT

EPA

REGION	SITE NUMBER *(to be assigned by Hq)*

NOTE: This form is completed for each potential hazardous waste site to help set priorities for site inspection. The information submitted on this form is based on available records and may be updated on subsequent forms as a result of additional inquiries and on-site inspections.

GENERAL INSTRUCTIONS: Complete Sections I and III through X as completely as possible before Section II *(Preliminary Assessment)*. File this form in the Regional Hazardous Waste Log File and submit a copy to: U.S. Environmental Protection [illegible] Force *(EN-335)*; 401 M St., SW; Washington, DC 20460.

KY0098950306 WARREN
EATON CORP/STD POWER CONTROL DIV
2901 INDUSTRIAL DR
BOWLING GREEN KY 42101
SMITH, MSC, SR PROJ ENGR 5027821555

CATION

REET *(or other identifier)*

ATE	E. ZIP CODE	F. COUNTY NAME

2. TELEPHONE NUMBER

H. TYPE OF OWNERSHIP

☐ 1. FEDERAL ☐ 2. STATE ☐ 3. COUNTY ☐ 4. MUNICIPAL ☐ 5. PRIVATE ☐ 6. UNKNOWN

"103-C NOTIFICATION" DATE: 810814
CARL SCHROEDER
PHONE: 502-564-6716

K. DATE IDENTIFIED *(mo., day, & yr.)*

2. TELEPHONE NUMBER

II. PRELIMINARY ASSESSMENT *(complete this section last)*

A. APPARENT SERIOUSNESS OF PROBLEM

☐ 1. HIGH ☐ 2. MEDIUM ☐ 3. LOW ☐ 4. NONE ☐ 5. UNKNOWN

B. RECOMMENDATION

☐ 1. NO ACTION NEEDED *(no hazard)*

☐ 2. IMMEDIATE SITE INSPECTION NEEDED
a. TENTATIVELY SCHEDULED FOR:
b. WILL BE PERFORMED BY:

☐ 3. SITE INSPECTION NEEDED
a. TENTATIVELY SCHEDULED FOR:
b. WILL BE PERFORMED BY:

☐ 4. SITE INSPECTION NEEDED *(low priority)*

C. PREPARER INFORMATION

1. NAME	2. TELEPHONE NUMBER	3. DATE *(mo., day, & yr.)*

III. SITE INFORMATION

A. SITE STATUS

☐ 1. ACTIVE *(Those industrial or municipal sites which are being used for waste treatment, storage, or disposal on a continuing basis, even if infrequently.)*

☐ 2. INACTIVE *(Those sites which no longer receive wastes.)*

☐ 3. OTHER *(specify)*: _____
(Those sites that include such incidents like "midnight dumping" where no regular or continuing use of the site for waste disposal has occurred.)

B. IS GENERATOR ON SITE?

☐ 1. NO ☐ 2. YES *(specify generator's four-digit SIC Code)*: _____

C. AREA OF SITE *(in acres)*	D. IF APPARENT SERIOUSNESS OF SITE IS HIGH, SPECIFY COORDINATES	
	1. LATITUDE *(deg.-min.-sec.)*	2. LONGITUDE *(deg.-min.-sec.)*

E. ARE THERE BUILDINGS ON THE SITE?

☐ 1. NO ☐ 2. YES *(specify)*: _____

Continue On Reverse

Continued From Front

IV. CHARACTERIZATION OF SITE ACTIVITY

Indicate the major site activity(ies) and details relating to each activity by marking 'X' in the appropriate boxes.

X	A. TRANSPORTER	X	B. STORER	X	C. TREATER	X	D. DISPOSER
	1. RAIL		1. PI		1. FILTRATION		1. LANDFILL
	2. SHIP		2. SURFACE IMPOUNDMENT		2. INCINERATION		2. LANDFARM
	3. BARGE		3. DRUMS		3. VOLUME REDUCTION		3. OPEN DUMP
	4. TRUCK		4. TANK, ABOVE GROUND		4. RECYCLING/RECOVERY		4. SURFACE IMPOUNDMENT
	5. PIPELINE		5. TANK, BELOW GROUND		5. CHEM./PHYS. TREATMENT		5. MIDNIGHT DUMPING
	6. OTHER (specify)		6. OTHER (specify)		6. BIOLOGICAL TREATMENT		6. INCINERATION
					7. WASTE OIL REPROCESSING		7. UNDERGROUND INJECTION
					8. SOLVENT RECOVERY		8. OTHER (specify)
					9. OTHER (specify)		

E. SPECIFY DETAILS OF SITE ACTIVITIES AS NEEDED

V. WASTE RELATED INFORMATION

A. WASTE TYPE

1 UNKNOWN 2 LIQUID 3 SOLID 4 SLUDGE 5 GAS

B. WASTE CHARACTERISTICS

1 UNKNOWN 2. CORROSIVE 3. IGNITABLE 4 RADIOACTIVE 5 HIGHLY VOLATILE
6 TOXIC 7 REACTIVE 8 INERT 9 FLAMMABLE

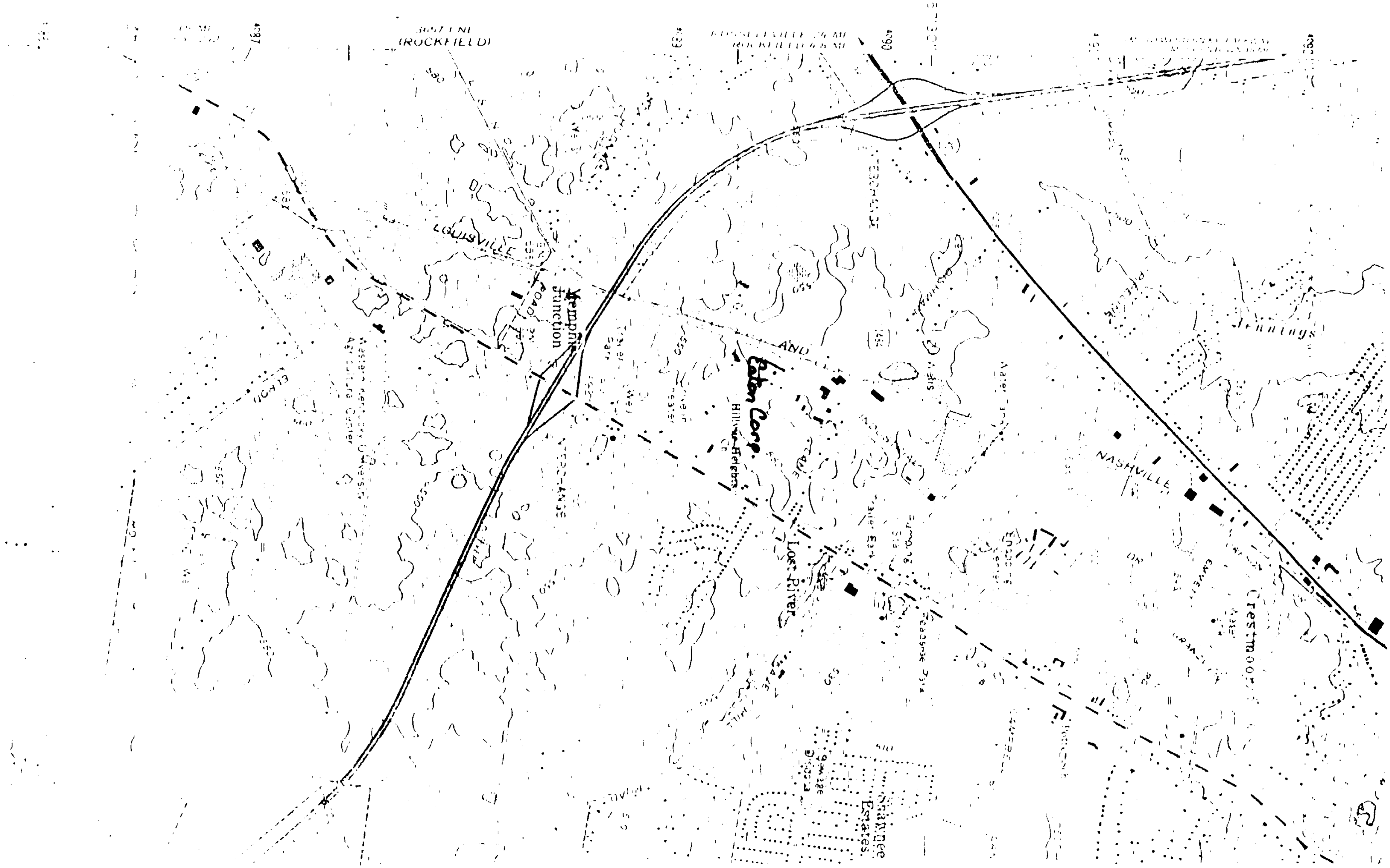
10. OTHER (specify)

C. WASTE CATEGORIES

1. Are records of wastes available? Specify items such as manifests, inventories, etc. below.

2. Estimate the amount (specify unit of measure) of waste by category, mark 'X' to indicate which wastes are present.

a. SLUDGE	b. OIL	c. SOLVENTS	d. CHEMICALS	e. SOLIDS	f. OTHER
AMOUNT	AMOUNT	AMOUNT	AMOUNT	AMOUNT	AMOUNT
UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE
X (1) PAINT, PIGMENTS	X (1) OILY WASTES	X (1) HALOGENATED SOLVENTS	X (1) ACIDS	X (1) FLYASH	X (1) LABORATORY PHARMACEUTICAL
(2) METALS SLUDGES	(2) OTHER (specify)	(2) NON-HALOGNTD SOLVENTS	(2) PICKLING LIQUORS	(2) ASBESTOS	(2) HOSPITAL
(3) POTW		(3) OTHER (specify)	(3) CAUSTICS	(3) MILLING/ MINE TAILINGS	(3) RADIOACTIVE
(4) ALUMINUM SLUDGE			(4) PESTICIDES	(4) FERROUS SMLTG. WASTES	(4) MUNICIPAL
(5) OTHER (specify)			(5) DYES/INKS	(5) NON-FERROUS SMLTG. WASTES	(5) OTHER (specify)
			(6) CYANIDE	(6) OTHER (specify)	
			(7) PHENOLS		
			(8) HALOGENS		
			(9) PCB		
			(10) METALS		
			(11) OTHER (specify)		


(ROCKFIELD)
LOUISVILLE
AND
NASHVILLE
Jennings
Memphis Junction
Eaton Corp.
Lost River
Crestmoor
Shawnee Estates

Part I Interim Status RCRA facility 8/30/84

No file

MEMORANDUM

TO: Caroline P. Haight, Manager
Permit Review Branch

FROM: Barry Burrus, Chief
Uncontrolled Sites Section

DATE: March 21, 1984

SUBJECT: Uncontrolled Site Close-out for the Eaton Corporation, Bowling Green Plant - Warren County

This facility produces relay-type electrical motor switchgear for industrial applications. Wastes generated at this facility include: electroplating sludge, water-based paint wastes, paint wastes used lubricating oil, and used chlorinated solvents.

The electroplating sludge is first treated with lime, acid, and a polyelectrolyte. It is then filter pressed to produce a "cake" which is disposed in a hazardous waste disposal site, operated by NEWCO Chemical Waste Systems of Ohio, Inc.

Water-based paint wastes, and paint wastes (containing no metals) are disposed on a quarterly basis.

Used lubricating oil and used chlorinated solvents are reclaimed on a quarterly basis.

The electroplating sludges are contained in lagoons prior to treatment. This practice is planned to be eliminated by an in-line filter cake process. Closure of the lagoons will begin in July, 1984.

After research of the KYNREPC files and the completion of a preliminary assessment by Robert Burns, I have concluded that this site requires no further action and should be removed from the uncontrolled sites list.

BB:RB:da

cc: Don Curry
Jack Watkins
Bob Prewitt
Robert Burns
File

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
KY	D098950306

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- ☐ A. SOLID
- ☐ B. POWDER, FINES
- ☐ C. SLUDGE
- ☐ D. OTHER NA (Specify)
- ☐ E. SLURRY
- ☐ F. LIQUID
- ☐ G. GAS

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)

TONS NA

CUBIC YARDS

NO. OF DRUMS

03 WASTE CHARACTERISTICS (Check all that apply)

- ☐ A. TOXIC
- ☐ B. CORROSIVE
- ☐ C. RADIOACTIVE
- ☐ D. PERSISTENT
- ☐ E. SOLUBLE
- ☐ F. INFECTIOUS
- ☐ G. FLAMMABLE
- ☐ H. IGNITABLE
- ☐ I. HIGHLY VOLATILE
- ☐ J. EXPLOSIVE
- ☐ K. REACTIVE
- ☐ L. INCOMPATIBLE
- ☑ M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS			
PSD	PESTICIDES	NA		
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
	NA				

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

State files

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
KY	D098950306

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☐ A. GROUNDWATER CONTAMINATION 03 POPULATION POTENTIALLY AFFECTED: NA	02 ☐ OBSERVED (DATE: _____) 04 NARRATIVE DESCRIPTION	☐ POTENTIAL	☐ ALLEGED
01 ☐ B. SURFACE WATER CONTAMINATION 03 POPULATION POTENTIALLY AFFECTED: NA	02 ☐ OBSERVED (DATE: _____) 04 NARRATIVE DESCRIPTION	☐ POTENTIAL	☐ ALLEGED
01 ☐ C. CONTAMINATION OF AIR 03 POPULATION POTENTIALLY AFFECTED: NA	02 ☐ OBSERVED (DATE: _____) 04 NARRATIVE DESCRIPTION	☐ POTENTIAL	☐ ALLEGED
01 ☐ D. FIRE/EXPLOSIVE CONDITIONS 03 POPULATION POTENTIALLY AFFECTED: NA	02 ☐ OBSERVED (DATE: _____) 04 NARRATIVE DESCRIPTION	☐ POTENTIAL	☐ ALLEGED
01 ☐ E. DIRECT CONTACT 03 POPULATION POTENTIALLY AFFECTED: NA	02 ☐ OBSERVED (DATE: _____) 04 NARRATIVE DESCRIPTION	☐ POTENTIAL	☐ ALLEGED
01 ☐ F. CONTAMINATION OF SOIL 03 AREA POTENTIALLY AFFECTED: NA (Acres)	02 ☐ OBSERVED (DATE: _____) 04 NARRATIVE DESCRIPTION	☐ POTENTIAL	☐ ALLEGED
01 ☐ G. DRINKING WATER CONTAMINATION 03 POPULATION POTENTIALLY AFFECTED: NA	02 ☐ OBSERVED (DATE: _____) 04 NARRATIVE DESCRIPTION	☐ POTENTIAL	☐ ALLEGED
01 ☐ H. WORKER EXPOSURE/INJURY 03 WORKERS POTENTIALLY AFFECTED: NA	02 ☐ OBSERVED (DATE: _____) 04 NARRATIVE DESCRIPTION	☐ POTENTIAL	☐ ALLEGED
01 ☐ I. POPULATION EXPOSURE/INJURY 03 POPULATION POTENTIALLY AFFECTED: NA	02 ☐ OBSERVED (DATE: _____) 04 NARRATIVE DESCRIPTION	☐ POTENTIAL	☐ ALLEGED

Continued From Front

VII. PERMIT INFORMATION

A. INDICATE ALL APPLICABLE PERMITS HELD BY THE SITE.

☐ 1 NPDES PERMIT ☐ 2 SPCC PLAN ☐ 3 STATE PERMIT *(specify)* _____

☐ 4 AIR PERMITS ☐ 5 LOCAL PERMIT ☐ 6 RCRA TRANSPORTER

☐ 7 RCRA STORER ☐ 8 RCRA TREATER ☐ 9 RCRA DISPOSER

☐ 10. OTHER *(specify)*: _____

B. IN COMPLIANCE?

☐ 1 YES ☐ 2 NO ☐ 3 UNKNOWN

4 WITH RESPECT TO *(list regulation name & number)* _____

VIII. PAST REGULATORY ACTIONS

☐ A. NONE ☐ B. YES *(summarize below)*

IX. INSPECTION ACTIVITY *(past or on-going)*

☐ A. NONE ☐ B. YES *(complete items 1, 2, 3, & 4 below)*

1. TYPE OF ACTIVITY	2. DATE OF PAST ACTION *(mo., day, & yr.)*	3. PERFORMED BY *(EPA/State)*	4. DESCRIPTION

X. REMEDIAL ACTIVITY *(past or on-going)*

☐ A. NONE ☐ B. YES *(complete items 1, 2, 3, & 4 below)*

1. TYPE OF ACTIVITY	2. DATE OF PAST ACTION *(mo., day, & yr.)*	3. PERFORMED BY *(EPA/State)*	4. DESCRIPTION

NOTE: Based on the information in Sections III through X, fill out the Preliminary Assessment *(Section II)* information on the first page of this form.

Continued From Page 2

V. WASTE RELATED INFORMATION *(continued)*

3. LIST SUBSTANCES OF GREATEST CONCERN WHICH MAY BE ON THE SITE *(place in descending order of hazard)*.

4. ADDITIONAL COMMENTS OR NARRATIVE DESCRIPTION OF SITUATION KNOWN OR REPORTED TO EXIST AT THE SITE.

VI. HAZARD DESCRIPTION

A. TYPE OF HAZARD	B. POTENTIAL HAZARD *(mark 'X')*	C. ALLEGED INCIDENT *(mark 'X')*	D. DATE OF INCIDENT *(mo., day, yr.)*	E. REMARKS
1. NO HAZARD				
2. HUMAN HEALTH				
3. NON-WORKER INJURY/EXPOSURE				
4. WORKER INJURY				
5. CONTAMINATION OF WATER SUPPLY				
6. CONTAMINATION OF FOOD CHAIN				
7. CONTAMINATION OF GROUND WATER				
8. CONTAMINATION OF SURFACE WATER				
9. DAMAGE TO FLORA/FAUNA				
10. FISH KILL				
11. CONTAMINATION OF AIR				
12. NOTICEABLE ODORS				
13. CONTAMINATION OF SOIL				
14. PROPERTY DAMAGE				
15. FIRE OR EXPLOSION				
16. SPILLS/LEAKING CONTAINERS/ RUNOFF/STANDING LIQUIDS				
17. SEWER, STORM DRAIN PROBLEMS				
18. EROSION PROBLEMS				
19. INADEQUATE SECURITY				
20. INCOMPATIBLE WASTES				
21. MIDNIGHT DUMPING				
22. OTHER *(specify)*				

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION
01 STATE: KY | 02 SITE NUMBER: KYD098950306

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☐ J. DAMAGE TO FLORA
04 NARRATIVE DESCRIPTION: NA
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED

01 ☐ K. DAMAGE TO FAUNA
04 NARRATIVE DESCRIPTION (Include name(s) of species): NA
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED

01 ☐ L. CONTAMINATION OF FOOD CHAIN
04 NARRATIVE DESCRIPTION: NA
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED

01 ☐ M. UNSTABLE CONTAINMENT OF WASTES
(Spills/runoff/standing liquids/leaking drums)
03 POPULATION POTENTIALLY AFFECTED: NA
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ N. DAMAGE TO OFFSITE PROPERTY
04 NARRATIVE DESCRIPTION: NA
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs
04 NARRATIVE DESCRIPTION: NA
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING
04 NARRATIVE DESCRIPTION: NA
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS
NA

III. TOTAL POPULATION POTENTIALLY AFFECTED: _____

IV. COMMENTS

V. SOURCES OF INFORMATION (Cite specific references, e. g., state files, sample analysis, reports)

MEMORANDUM

TO: [redacted]

FROM: *Scott Morgan, Env. Specialist I*
Hazardous Material Management Section
Bowling Green Field Office

DATE: *March 23, 1979*

SUBJECT: [redacted]
2901 Industrial Drive
Bowling Green, Kentucky 42101

On March 12, 1979, I met with Mr. Mel Smith, Project Engineer to discuss waste disposal at Cutler-Hammer. The Bowling Green Plant employs approximately 900 people in the manufacture of electronic controls.

Cutler-Hammer generates a variety of waste materials including, acids, bases, metal hydroxide sludge, plastics, and resins.

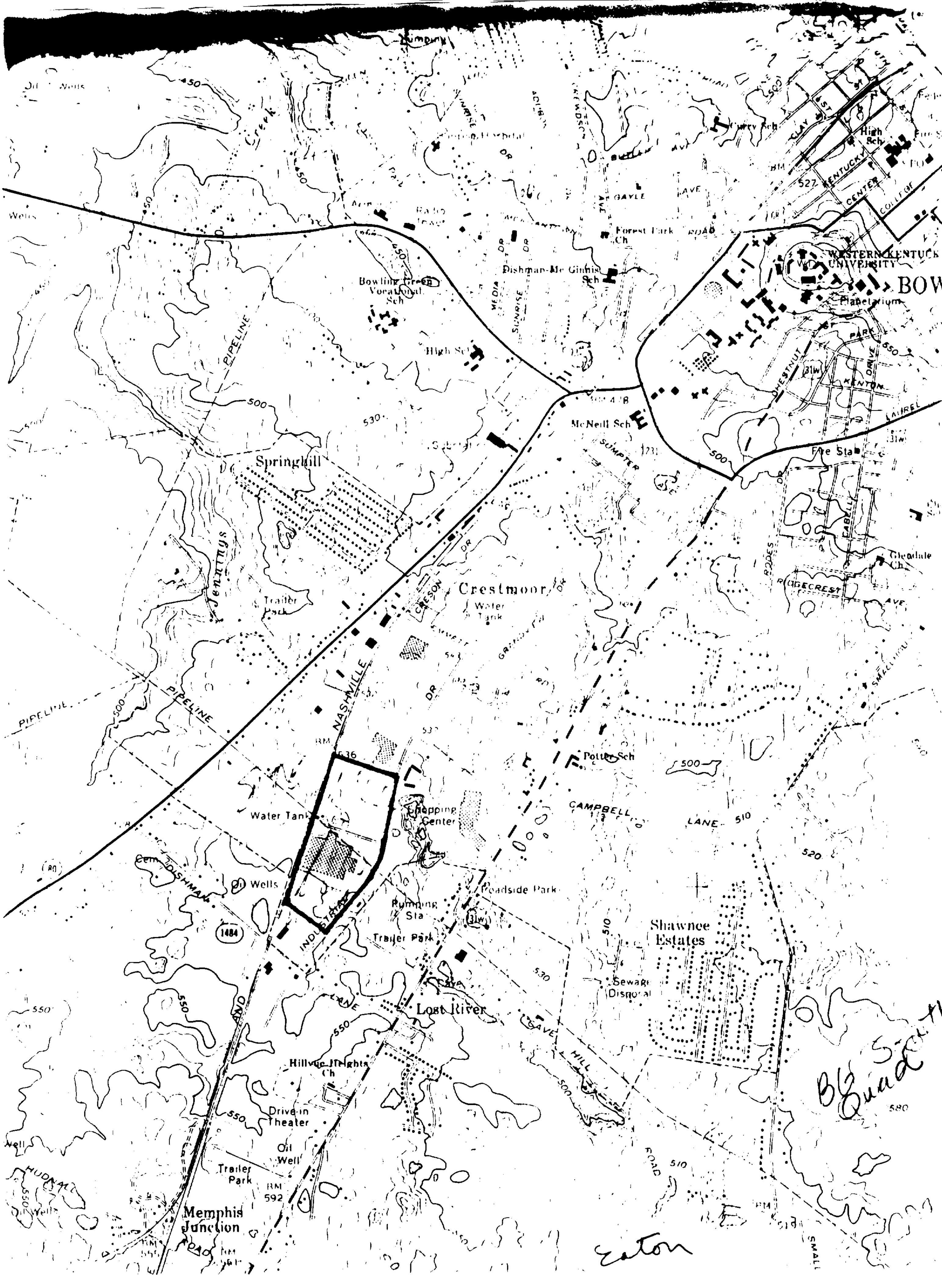
Acids and bases, (sulfuric acid, hydrochloric acid, nitric acid, sodium hydroxide, and potassium hydroxide) are subjected to chemical treatment prior to discharge to the local sewage system.

Tanks totaling 200,000 gallons are combined with a million gallon lagoon for the storage of metal hydroxide sludge. This material is disposed of once every ten (10) years. The last shipment of hydroxide sludge was handled through John P. Saad and Son, Nashville, Tennessee, in October of 1976.

Electrocoat resins are buried, on a quarterly basis, in the Bowling Green landfill. The total volume of resin waste is approximately 1000 lbs. per year. Mr. Smith was supplied with the paperwork necessary to apply for permission to continue the landfill disposal of resin waste.

Fully reacted plastic is buried in the Bowling Green landfill via Monarch Environmental.

Cutler-Hammer has not run analyses on any of the wastes mentioned above.


Springhill
Crestmoor
Water Tank
Trailer Park
Bowling Green Vocational Sch
High Sch
Dishman-Mc Ginnis Sch
Forest Park Ch
McNeill Sch
WESTERN KENTUCKY UNIVERSITY
BOW
Planetarium
Potter Sch
Shopping Center
Roadside Park
Pumping Sta
Lost River
Shawnee Estates
Sewage Disposal
Hillvue Heights Ch
Drive-in Theater
Oil Well
Memphis Junction
Glendale Ch
Fire Sta
NASHVILLE
PIPELINE
CAMPBELL
LANE
INDUSTRIAL
CAVE
HILL
ROAD
GAYLE
AVE
KENTUCKY
CENTER
CHESTNUT
KENTON
LAUREL
RIDGECREST
CRESON
SUMPTER
1484
Eaton